

COAST ARTILLERY JOURNAL



NOVEMBER-DECEMBER, 1942

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THE COAST ARTILLERY JOURNAL

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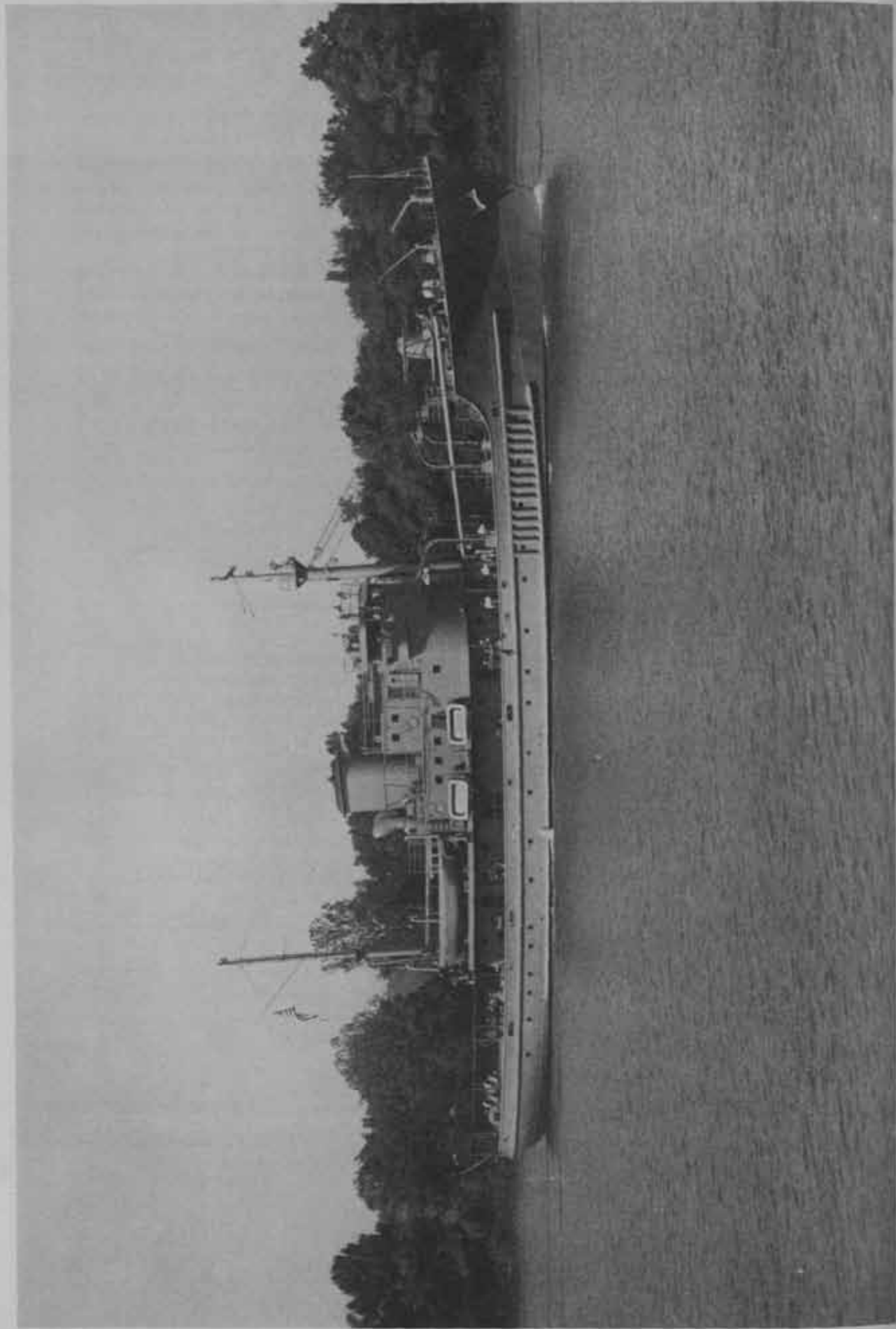
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A New Mine Planter

COAST ARTILLERY JOURNAL

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VOLUME LXXXV

NOVEMBER-DECEMBER, 1942

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CONTENTS



COVER DESIGN. <i>Photograph by Lieutenant Robert J. Smirnoff, Coast Artillery School.</i>	
A NEW MINE PLANTER. (<i>Photograph</i>)	2
GENERAL McNAIR'S MESSAGE	4
GENERAL GREEN'S MESSAGE	5
THE RAILWAY ARTILLERY IS READY TO ROLL. <i>By Captain Charles L. Combes</i>	6
ANTIAIRCRAFT ARTILLERY OF THE ARMY CORPS. <i>By Artillery Commander Ricardo Castro Caruncho</i>	11
BUILDING BARRAGE BALLOONS. (<i>Pictures</i>)	20
PEARL HARBOR. <i>By Sergeant Robert B. Hicks and Corporal Lawrence A. Mills</i>	22
DUTCH HARBOR. <i>By Sergeant Raymond R. Tull and Corporal C. Grant Burton</i>	23
USING THE CRICHLOW SLIDE RULE. <i>By Major J. W. Eichinger, Jr.</i>	25
ANTIAIRCRAFT COMMAND INSPECTION TEAM. <i>By Major Stanley W. Luther</i>	28
OUR EXPANDING ANTIAIRCRAFT. <i>By Lieutenant General Lesley J. McNair</i>	30
MELANESIAN OUTPOST. <i>By Lieutenant Colonel Henry G. Fowler</i>	32
OBSTACLE COURSE AT CAMP EDWARDS AATC. (<i>Pictures</i>)	36
COAST ARTILLERY OFFICER CANDIDATE SCHOOL. <i>By Lieutenant Robert J. Smirnoff</i>	38
LUBRICATION OF COAST ARTILLERY MATERIEL. <i>By Ruth Harry</i>	41
BALLISTIC CORRECTION RULE. <i>By Captain Donald W. Holmberg</i>	44
WAR PLANES OF THE AXIS (Part II). <i>By David C. Cooke</i>	46
JUNGLE WARFARE (Part IV)	52
AXIS TROOPS INVADE FORT MONROE. (<i>Pictures</i>)	59
COAST ARTILLERY IN ACTION	60
COAST ARTILLERY BOARD NOTES	63
ANTIAIRCRAFT ARTILLERY BOARD	66
NEWS AND COMMENT	68
COAST ARTILLERY ACTIVITIES	75
BOOK REVIEWS	98
INDEX	109

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To the Officers, Warrant Officers and Enlisted Men of the Army Ground Forces:

Our second war Christmas is near.

Our first year of war has seen many of the Ground Forces complete home training and move overseas. Many more will join them in 1943.

For those of you who are new in the Army and only just breaking home ties, I ask the friendly and wise help of your more experienced comrades. Thus you will learn the stern duties of the soldier quickly and well and may appreciate both the privilege and the responsibility of serving your Country in its hour of need.

To the older soldiers, I send a plea for an all-out, unceasing effort in training. It will pay richly on the battlefield, bringing success to our arms and enhancing your own chances of returning home.

To the officers who are building our war army, your first duty is to make yourselves fit by study and training to command the finest soldiers in the world. Lead your men by your own example, by training them thoroughly and wisely, by instilling high ideas of discipline, and by your concern for their comfort and welfare.

To you all, my deepest thanks for your devotion and fine accomplishments during the past year. If the holiday season may not bring you the joys of former years, may your feelings be of satisfaction for duty well done, and of firm resolve for the critical days ahead.

My own humble appreciation of so fine a command.



L. J. McNAIR,
Lt. Gen., U.S.A.,
Commanding.

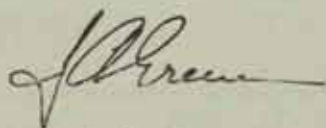


To Members of the Coast Artillery Association:

Greetings at this time of Christmas and a sincere wish that the day will bring you an inner sense of happiness from a knowledge of duty well performed toward God and your country.

This Christmastide we look forward with strength and confidence toward the coming year and its responsibilities. Whatever of hardship, whatever of anguish may be ahead for us before this task is finished, we face it secure in the knowledge that the blessings of its accomplishment will more than repay us for the present travail of war.

As President of the Coast Artillery Association I have noted with great satisfaction the manner in which you have measured up everywhere to standards set early in the life of our Corps. The example set for all Coast Artillerymen by our brothers-in-arms who so courageously upheld the traditions of the Corps on Bataan and Corregidor will continue to inspire us to greater efforts throughout this conflict. At this season of the year those heroes and their families are held even closer in our hearts; we will together keep the faith until Victory brings us its own blessings at some future Christmas.



J. A. GREEN,
Major General, U. S. Army,
President.



The Railway Artillery Is Ready to Roll

By Captain Charles L. Combes, Coast Artillery Corps

Move fast—hit hard. This is the motto of a railway artillery regiment. It implies speed of movement and great fire power, inherent characteristics of the heavy-caliber guns carried on modern railway mounts. Properly designed, railway artillery can be moved safely at the same high speeds that are today so common to the schedules of heavy freight trains on American railroads. The first World War demonstrated the ability of railway mounts to handle successfully the heaviest types of artillery.

Full advantage of the mobility and fire power of railway artillery can be obtained only by an organization trained and equipped to handle the problems peculiar to armament and auxiliary equipment that roll on ribbons of steel. Besides knowing artillery and artillery problems, railway artillerymen must know also the art of railroading. They must be familiar with the capabilities and limitations of the heavy mobile equipment

they control. Railway artillerymen have to be prepared to construct and maintain their own tracks, and be trained as well in the operation and repair of railway equipment. They must get there before they can shoot.

While designed and equipped primarily for seacoast defense, railway artillery is equally valuable in land warfare against targets that can be attacked only by weapons with the long range and power of seacoast guns. For seacoast defense, the railway artillery may have the mission of bolstering the fixed batteries of harbor defenses or it may be moved quickly to protect undefended coastal areas outside of harbor defenses. The assignment of the latter mission will be assumed for the purpose of showing how a battalion of the railway artillery functions, and the special rolling stock with which it is equipped.

Being confined by its design to routes traveled by the "iron horse," the first requirement is that existing rail



Fire control car.

Photo: Lieutenant Ralston

way lines provide access to the designated area. More than that, the routes must be checked to make certain that no restrictions are present because of curvature, grade, clearances, or wheel loads. A study of railway maps prepared by the Corps of Engineers for that purpose will show the railway lines having the capacity for moving the heavy equipment of the railway artillery. Fortunately, the network of railway lines along our coasts are of such construction as to place few limitations on the movement of this equipment.

The greatest delay to the occupation of positions by railway artillery results from the absence of tracks that can be utilized as firing and parking tracks. Therefore, a reconnaissance is made to determine the exact location of existing sidings or spur tracks and advantage is taken of these facilities, if possible. Where the tracks are controlled by a commercial railroad, the reconnaissance is made with the assistance of local railroad engineers familiar with every foot of trackage under their supervision. When firing and parking tracks are not available for the exclusive use of the battalion, a survey is made to establish the exact route for the construction of the required trackage. The firing tracks are located in positions from which effective fire can be delivered. Advantage is taken of natural cover for concealment and defilade from off-shore observation is desirable. The sites for the base-end stations are chosen and surveys are initiated for the determination of orientation data. Tent areas are established.

Although track construction is a normal function of the Corps of Engineers, railway artillery units are trained to build their own tracks independent of any outside assistance. The battalion headquarters battery has a railway section whose primary function is to maintain the battalion tracks. In the firing battery, no troops are authorized for the specific purpose of constructing and maintaining railway tracks. Every available man in the battalion must be trained and used for this work because the prompt installation of the guns in their firing positions has priority over all other considerations. Track materials are carried in the gondola cars and track tools in the store cars; both types of cars being part of the organic railway equipment belonging to the battalion. Before the tracks can be laid, the subgrade must be prepared along the lines selected and staked out previously by the survey party. The grading operations can require a large amount of work and for this reason the battalion commander's judgment in selecting positions that can be reached by lines that avoid heavy cuts and fills is important. When the subgrade is completed, the ties are placed in position, the rails are laid to gage, and the track is aligned. The length of time the tracks are to be used determines the subsequent track refinements to be made.

The organic railway equipment of the railway artillery is ready to roll at all times. It is maintained by the battery personnel under the supervision of the battery railway sergeant in accordance with the interchange



Portable observation tower.

Photo: Master Sergeant Price

rules of the Association of American Railroads. The battalion railway equipment includes a diesel-electric locomotive, gun cars, fire-control cars, ammunition cars, store cars, kitchen cars, tank cars, and gondola cars. It may also include the railway machine shop car served by a platoon of the Ordnance maintenance company that is organized primarily for maintaining railway artillery equipment in the field. (See page 66, September-October, 1942, issue.) Railway cars for the movement by rail of the personnel and motor vehicles are furnished by the commercial railroads. Upon receipt of a warning order for movement, the additional railway equipment required is requested. Whether the motor vehicles are moved by rail or by road depends upon the

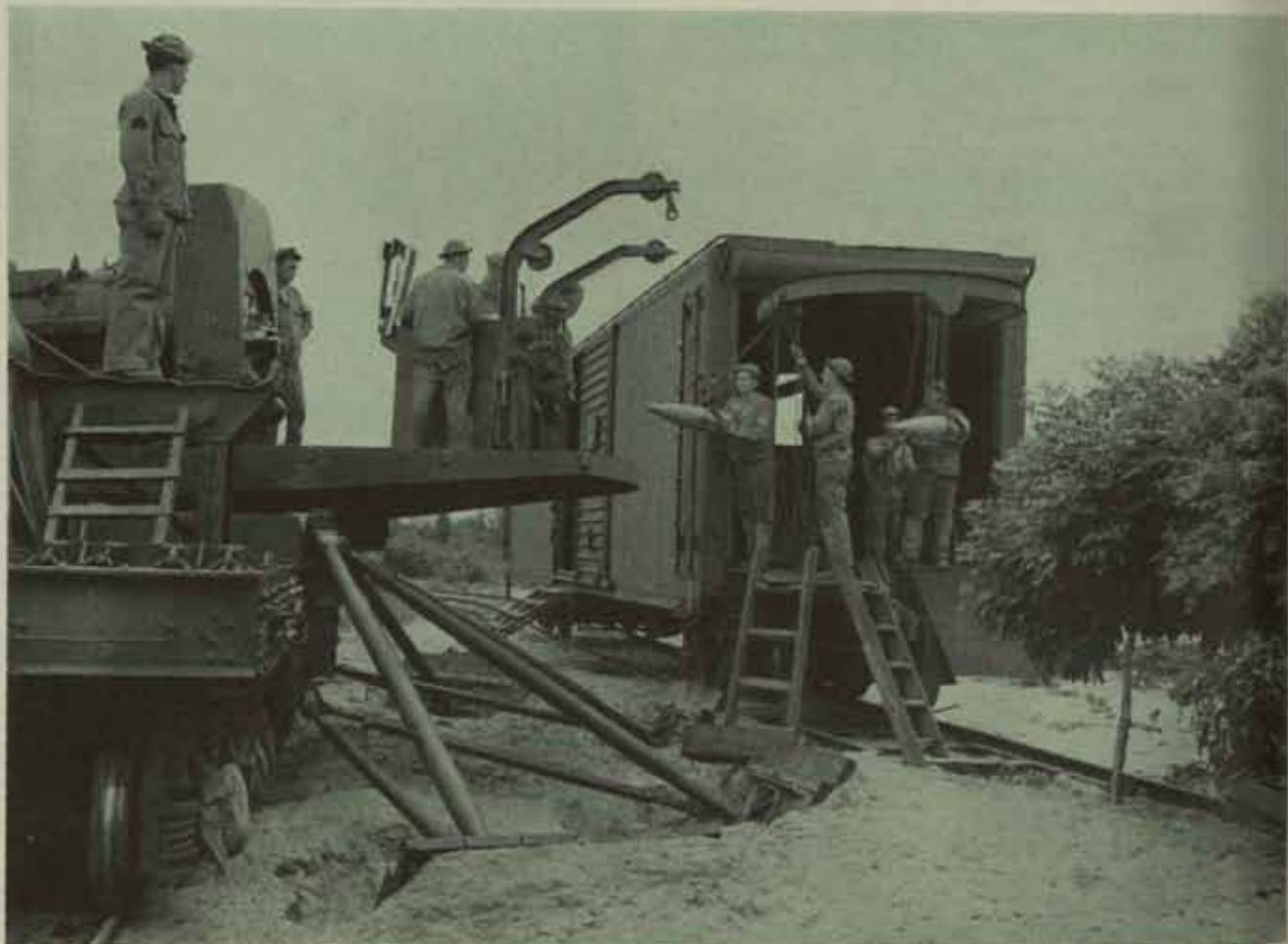
distance to the destination. Normally, the motor vehicles are moved under their own power for journeys of less than 350 miles.

The battalion locomotive is used to make up the armament train. This locomotive is designed primarily for local switching of cars on railway artillery tracks or on the tracks of harbor defenses where the railway artillery may be assigned. It is operated by a qualified railroad crew furnished by the battalion headquarters battery. The locomotive weighs sixty tons at the rails, has a 425-horsepower Diesel engine, and develops a starting tractive force of approximately 35,000 pounds. A road locomotive of either the commercial or military railways is required to handle the heavy tonnage battalion train on long journeys. The battalion locomotive may be moved "dead" in the armament train or under its own power to the destination. The passenger equipment carrying the personnel is normally run as a separate train.

Assuming that the firing tracks and parking tracks have been completed, the battalion immediately upon arrival of the battalion armament train, organizes the positions, installs communications, and gets its guns in readiness to fire. The gun cars are run into position, emplaced, and the guns are oriented. Ammunition cars

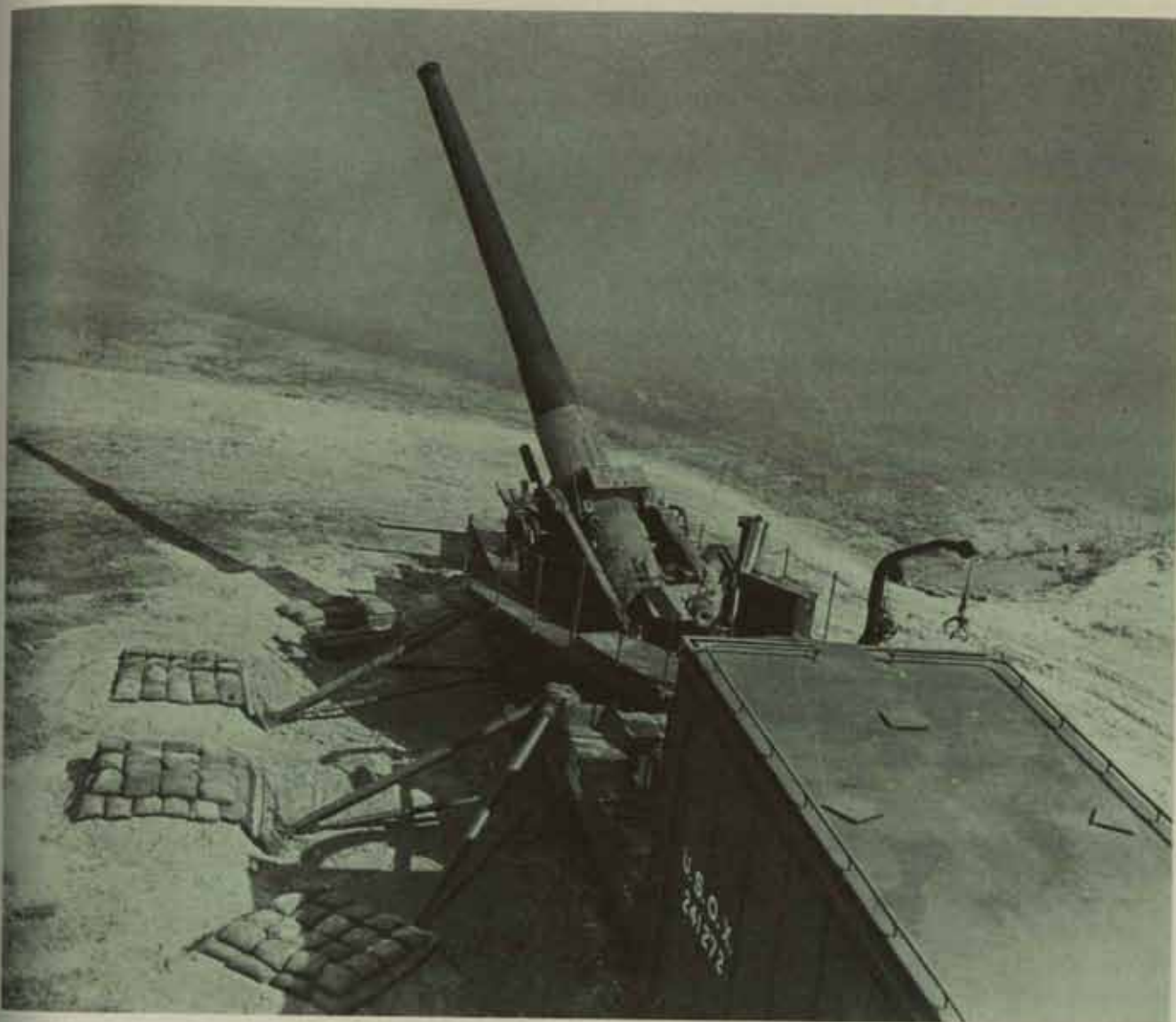
are usually placed directly behind each gun unless field magazines are used. The ammunition service can be readily maintained if the situation makes it preferable to locate the ammunition cars on an adjacent parallel track to that on which the guns are emplaced. The supply of projectiles and powder charges is relatively simple when an ammunition car is coupled to each gun car. The ends of the ammunition car have roll-type doors that can be opened in a few seconds. An oval-shaped trolley track carrying the projectile hoists is then rolled out until it projects over the end of the gun car where it is locked into position. The projectiles are carried in racks located in each corner of the car while the powder charges are grouped in the center. The projectiles are lifted from the racks by the hoists and then moved along the trolley track to a position from which they can be lowered to the projectile table on the gun car. Both ends of the ammunition car are identical with each end being equipped with a separate overhead trolley. If it is desired to move the projectiles from one end of the car to the other end, an arrangement is provided for coupling the two trolley tracks together to form one continuous track the entire length of the car.

The fire-control car is located on a spur track, usually at least 300 yards from the gun position. This car con-



Serving projectiles to the gun.

Photo: Master Sergeant Price



Emplaced and ready for action.

Photo: Lieutenant Smirnov

tains the fire-control and position-finding instruments normally found in the plotting room of any fixed battery. It is essentially a box-type railway car designed and equipped to meet the needs of a mobile plotting room. A motor generator set located in a compartment in one corner of the car furnishes the power for the illumination of this car and other railway cars in each battery. This compartment is insulated to eliminate the motor noises which might interfere with the transmission of data over the communication lines. The lighting equipment includes five double fluorescent lights installed in the ceiling which produce adequate illumination for the reading and setting of the various instruments. For operation during a blackout, special curtains on the windows and at the side doors prevent any light from escaping to the outside. The curtains at the side doors also permit men to enter and leave without light showing to the outside. To do this, a man draws the curtains around the circular rods from which the curtains are suspended, steps inside, and then opens

the outside door. For cold weather, a gasoline-fired boiler is installed which furnishes steam for two unit heaters suspended from the ceiling in diagonally opposite corners of the car. The circulation of heat is obtained by blowers located in back of each heater. These fans may also be used during hot weather to circulate the air in the car and maintain a reasonable degree of comfort. The car contains a washstand with running hot and cold water. Water storage facilities are located in the roof of the car, while the gasoline is carried by tanks suspended from the car underframe.

Portable fifty-foot towers are available to each battery for base-end and BC stations. The towers are moved disassembled in the gondola cars and the parts are small enough to be carried by motor trucks to the selected sites after arrival of the armament train at the destination. Each tower can be erected in less than ninety man hours.

Gun tools and servicing equipment for each firing battery are kept in a store car which is switched onto a

track convenient to the gun positions. This car is a box-type car having electric lighting fixtures and wires with an outside receptacle in order to obtain power from the fire-control car or any 110-volt line. A similar car used as a mobile supply room is located on a track adjacent to the bivouac area.

Water storage for each firing battery is furnished by a 10,000-gallon standard tank car. The battalion headquarters battery has a two-compartment tank car for transporting the gasoline for the motor vehicles and the motor generator sets and the fuel oil required by the Diesel-electric locomotive. The tank cars carrying water are moved by the locomotive to the gun positions or the bivouac area as required by the situation.

Because the muzzle of the gun extends over the end of the railway mount, an idler car must be coupled to the muzzle end of the gun car when in transit. Drop-end gondola cars are assigned to each firing battery for this purpose. Advantage is taken of the carrying capacity of these cars as they may be loaded, providing the lading clears the muzzle of the gun by at least four inches. Track materials, portable towers, and bulk equipment not harmed by exposure to the weather are carried in the gondola cars. At least one motor vehicle may be shipped, if necessary, in the end of the car opposite the gun muzzle. Upon arrival at the destination, the gondola cars are uncoupled from the gun cars, unloaded, and then stored on the parking tracks.

The kitchen cars have not been delivered to the railway artillery but they are under construction. Each battery is assigned one of these cars which will have all the facilities required to meet the needs of a battery mess. In one end of the car will be located a range, food-warmer, sink, refrigerator, storage locker, and a serving

table. Near the center of the car will be a table and seats for the battery officers. Partitioned off from the remainder of the car in the end opposite the kitchen are a shower bath and additional storage lockers. The car will have a motor-generator set, a heating unit, ventilating fans, electric lights, and both gasoline and water storage tanks. Each battery will park its kitchen car near the bivouac area for convenience.

The ammunition, fire-control, kitchen, and store cars are built to the same general specifications as to railway design. Special features include cushion underframes and trucks equipped with roller bearings. The cushion underframes are designed to absorb the impacts and shocks transmitted to the cars en route or while switching and thus prevent damage to the lading. The roller-bearing journal boxes are important for maintenance reasons because they eliminate the need for journal-box packing and are effectively sealed to prevent the entrance of sand and dirt into the bearings. Portable steps for the side doors of these cars are carried in special racks slung from the car underframes.

Railway artillery equipment of today is not of the make-shift design and construction that prevailed during the first World War when most of the mounts had to be improvised because time was short. It has been designed and built to meet the requirements of the service for which it is intended. Like any other arm, however, the trained troops handling the equipment are of primary importance. The scope of railway artillery operations and the magnitude of the work involved in handling its rolling stock indicate why railway artillerymen must be trained in the expert gunnery of the Coast Artillery Corps and imbued with the knowledge, resourcefulness, and "keep 'em rolling" spirit of American railroad men.



Our job right now is to win the war. Nothing else counts. All our resources, in men and in materials, all our energies, must be bent toward that single aim—winning the war. If we keep that aim steadily in view, if we allow nothing to divert us—and that is a big "if"—we are bound to win.—HON. ROBERT P. PATTERSON.

ANTIAIRCRAFT ARTILLERY

Of the Army Corps*

By Artillery Commander Ricardo Castro Caruncho

Many of the missions assigned during war to anti-aircraft batteries are identical with those assigned to coast and field batteries. Such are, for example, the firing upon ground objectives and sea objectives—which was done during the Spanish Civil War and to a much larger extent exists today in the present European struggle. The ideal would be for all the arms utilized by an army to be capable of being employed without distinction against aircraft or ground targets. It is not thought that the possible adaptation of coastal batteries of small or medium caliber to anti-aircraft fire presents any great technical or tactical difficulties in modifying the mounts of such artillery units to serve this purpose. The army corps—defined in our regulation for the tactical use of large units as "the first unit of maneuvering"—will always carry anti-aircraft artillery having this double mission.

The anti-aircraft defense can be always effective and it is absolutely necessary that all the troops be convinced that a fight can and ought to be made against airplanes as well as against every other form of enemy attack. This conviction must be based on the security inculcated by thorough instruction, which it is necessary to give all units, no matter what kind they may be. All soldiers from the one who works in an office to the one who fights in the front line have a mission in anti-aircraft defense. For some this mission will consist in the use of their arms against airplanes, and others will only have to protect themselves against bombings. Some will have stations assigned to them in the network of listening posts, and others will have to use the telephones and the radio to give the alarms, orders, and reports which the anti-aircraft defense needs. But absolutely all of them have to cooperate in the defense.

For the commands of all units to function harmoniously it is necessary to give them the information which is indispensable if they are to know how to use their guns and automatic arms in an effective and well-organized manner, how to protect the lives of their soldiers by making use of slopes and accidents of the terrain, and how to dispose their forces and elements in such a manner that they may be under control during every phase of the battle. All of this constitutes an important branch of military science. In war and in peace it must be given extraordinary attention since it is an essential feature of anti-aircraft defense that at every phase of the combat or the movement of troops it is necessary to improvise in a few moments. And this can be done

only when each one knows what he has to do and does it without hesitation, firmly convinced that the means he adopts are the most effective—something which is acquired only by intense and careful instruction.

The anti-aircraft defense of a large unit at rest, in movement, or during fighting is quite different from that of a vulnerable point in the rearguard. If we examine the deployment of an army corps when it is extended over a large area or when its three divisions are deployed in the front line and along a stabilized front, we observe in it two important zones from the point of view of an anti-aircraft defense. The first extends over the surface of the terrain situated in front of the principal line of resistance, and the second, all the terrain back of this line. The first line is occupied almost exclusively by trenches, casemates, strong points, etc., or separate nuclei of forces which the enemy will have to attack at low altitudes in order to get effective results. In the second zone, on the other hand, there will be important concentrations of personnel and matériel such as batteries, automobile parks, reserve troops, headquarters, hospitals, food stores, and munition dumps, convoys, etc.—in other words, important objectives which the enemy will attack in force and at all altitudes of flight. Both zones will be attacked by dive bombers, although with greater intensity in the second than in the first as a result of the proximity of the latter to the opposing lines.

Let us see now what elements we can count on for the defense. Omitting the pursuit planes—the use of which is outside of the scope of this article—we can group anti-aircraft arms in three classes: Light cannon of medium caliber, automatic cannon of small caliber, and anti-aircraft machine guns. The first two constitute the anti-aircraft artillery in the strict sense of the word. Because they function as a defense for the large unit as a whole, they are a group under the direct orders of the Commander in Chief of the Army Corps. The third is very well adapted to the individual defense of each unit against low-level and dive-bombing attacks. It will be attached to the divisions and even the smaller units if there is a sufficient number of pieces. Besides these typical anti-aircraft arms, rifles and automatic arms will also be employed by the units for the purpose of intensifying the fire of the anti-aircraft defenses. Their use requires careful organization and discipline since in no case will all the arms available be used for firing against aircraft but only those which the command designates for this purpose.

*From *Ejército*, Spain, issue of February 1, 1942.



Spanish AA Machine Gunners

A. R. M.

Another factor to consider in the anti-aircraft defense of an army corps is its proximity to the enemy lines. This necessitates a careful study and use of the means of communication and liaison between the listening posts and the units which are to be given the alarm. This question is of prime importance since one of the most important factors in the success of anti-aircraft defense is the certainty that an air attack will not have to be faced without warning. In this mission all the troops of the army corps have to cooperate since neither the anti-aircraft services nor the anti-aircraft units have at their disposal the necessary personnel for an alarm post in each unit or service. For giving alarms and supplying anti-aircraft information it is necessary to make frequent use of observation posts, telephone lines, and radio stations of all the units of the Army Corps. This requires an interlocking of these units with the anti-aircraft units, which can be obtained only when all of them have the unity of doctrine and thought which is the fundamental key to success.

Having made these brief preliminary observations—which are indispensable for knowing how to move and put into operation the anti-aircraft artillery of the Army Corps—we shall turn to a study of the artillery itself considering separately each of its three echelons: the battery, the group, and the groupment.

THE BATTERY

The anti-aircraft batteries of the Army Corps may be of two kinds: anti-aircraft cannon and automatic weapons. The former employ bursting projectiles or splinter shells of medium caliber, with graduated fuses. They will be capable of hitting planes at all altitudes, and will follow the fundamental theory of anti-aircraft fire. The latter will be formed by automatic cannon of small caliber, which will fire on the immediate extension of the route of the planes with projectiles having sensitive percussion fuses. They will have a vertical range of about four thousand meters. Both have to be provided always with apparatus necessary to prepare for firing, which may be more or less elementary in the automatic cannon. The anti-aircraft cannon, in view of the nature of present-day aviation, always have to be equipped with automatic direction of fire and mechanical setting of fuses. A battery without effective apparatus needed to prepare for anti-aircraft fire is never an anti-aircraft battery. At best it will be a battery for cooperating in laying down barrages, but which cannot be depended on at all for precision.

An essential feature of anti-aircraft batteries is mobility. An anti-aircraft battery must constantly change positions in order to prevent its being located by enemy artillery, aviation, and espionage. The displacement is always made at night except when the battery may be hit by terrestrial fire. In this case it should change position immediately since its operation in case of an air attack will become very difficult and therefore of little effect. For these reasons it is absolutely necessary that each battery have its own means of transportation and that these should never be separated from it.

The mission of an anti-aircraft battery requires a complete devotion of the personnel to the defenses of the air. In a very short time it has to open effective fire. This requires that all, from the captain to the last soldier, always be on the alert for enemy aircraft. In the Spanish War, which was characterized to such a great extent by the spirit of sacrifice, we saw artillerymen who were fast asleep come out of their shelters saying that they "heard airplanes." Nothing could be more graphic than this phrase. It pictures the psychology of the anti-aircraft soldier, who always keeps his senses alert in the service of the sacred mission of defending his comrades while they are resting or firing. The anti-aircraft artilleryman not only hears and sees the planes, but his whole being is under constant tension. Therefore it is necessary that the batteries have an ample establishment, which will permit a part of the personnel to rest at a distance away from the battery, since no rest is taken at it without the effectiveness of the fire suffering as a result. For that purpose there might be attached to each unit one additional crew for the direction of fire, the artillery piece, and the protective machine gun in order that by alternating, the personnel may rest away from the battery, at least once a week.

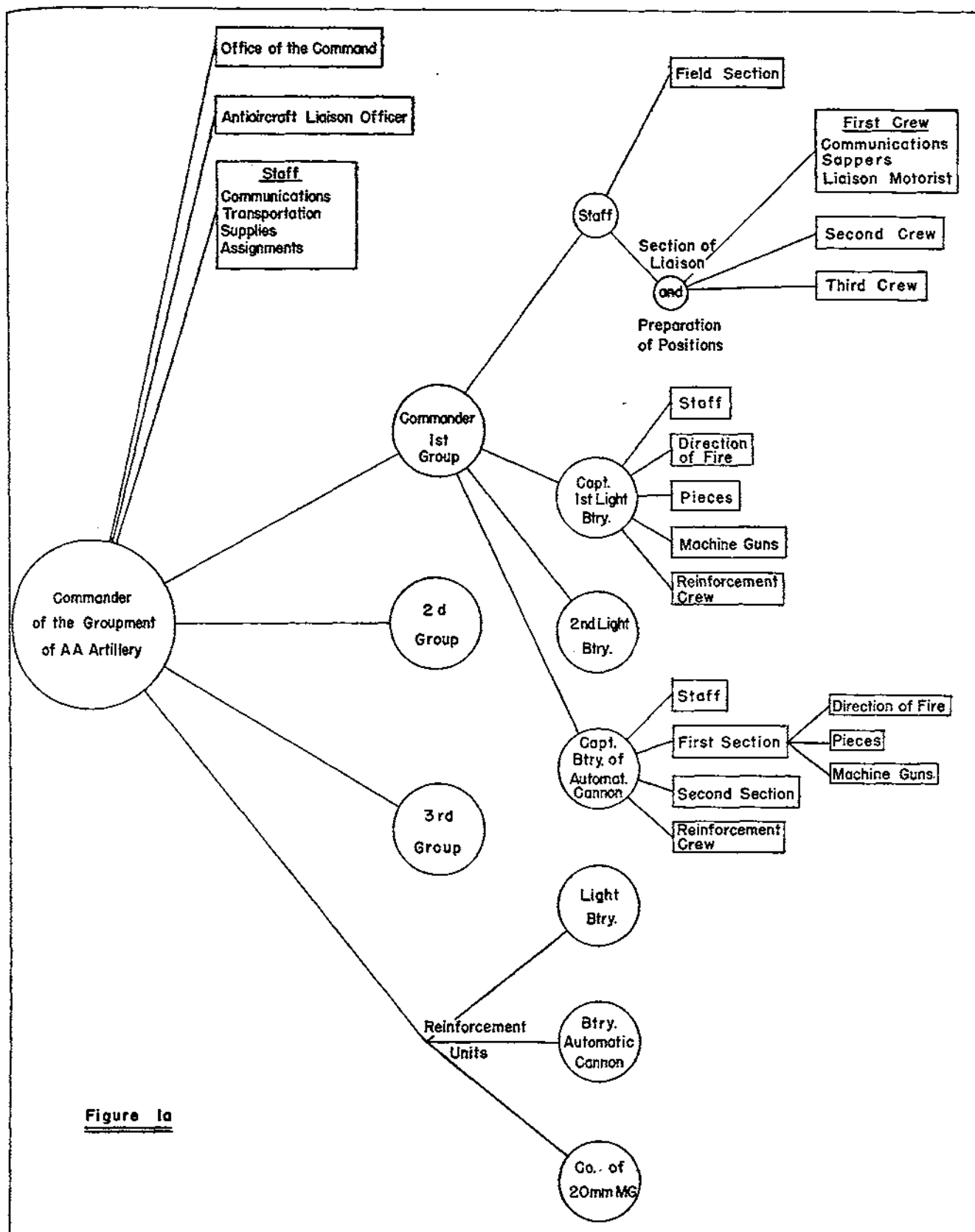


Figure 1a

From what has been said we can see that it is necessary for each battery to have its own provisions and equipment, such as kitchens, tents, trucks, etc. It should also have nets for camouflage and sapper tools for making trenches for the personnel and the muni-

tions in order to protect them from machine gun strafing at low altitudes. This is the only case in which the personnel is forced to abandon the service of the artillery pieces because of the impossibility of hitting a target which flies at a very low altitude and within the



Motorized AA in Barcelona

dead space of the battery. Its defense in this case is exclusively the task of the protective machine guns, which should never be removed from the gun batteries.

Besides these elements, the batteries have at their disposal a staff analogous to the field staffs. When the mission of the batteries consists only in firing on ground targets, they use this battery staff. However, when they fire on the land or sea only incidentally without abandoning the mission of antiaircraft fire, the staff which makes the observations and corrects the fire of the battery should be that of the group. In this way the battery will not be forced to draw out its lines and distract personnel from its specific mission.

THE GROUP

This unit is made up of a certain number of batteries, generally three. But its operation is never different from that of the groups of field artillery. In the first place the batteries will never be in the same zone of emplacements, but will, on the contrary, be separated from each other a variable number of kilometers according to the mission assigned to the group and according to the density of the batteries of the Army Corps. The batteries will nearly always fire individually against the aerial objective; and rarely will the commander of the group direct the fire on account of the difficulty of employing in a war of movement equipment for directing

the fire of various batteries. It is the duty of the commander of the group to assign to each captain special missions of antiaircraft and ground fire and to place his batteries in emplacements suitable for each phase of the battle. For the former he has to maintain a close liaison with the command of the groupment; and for the latter he will constantly study a large number of positions in order that his batteries may follow the continual displacements of the troops. This work can be done with relative calm when the Army Corps is occupying a stabilized front, but in a war of movement it is of such magnitude that the commander of the group rarely gets a chance to rest except in the seat of his automobile. From morning till night the battle will produce alternating phases; and especially when the enemy is pursued, some units will make deep advances which it is necessary to protect from air attacks. Only rarely will this preparation be made by changing the emplacements of these batteries during the day, because they would be inactive during a change of position. It will always be necessary to move some units during the night; and the commander must have studied and reconnoitered the positions personally since the work of the captain of an antiaircraft battery, who is constantly preoccupied with being ready to go into action, prevents him from reconnoitering them himself.

When the time for changing position comes, it is

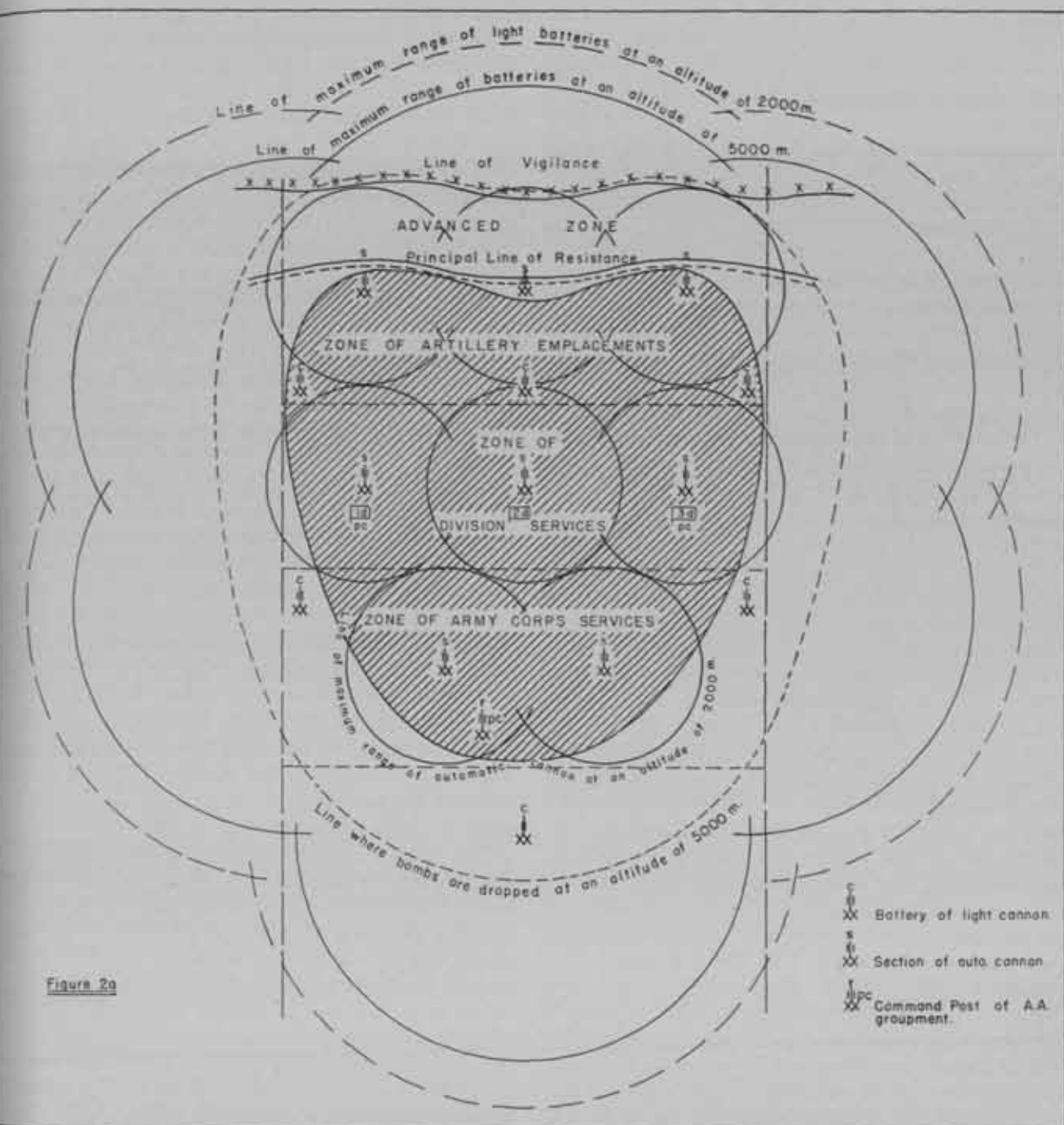


Figure 2a

necessary for the personnel of the Staff of the group to guide the battery to its new position. During this march quite a few road jams will necessarily arise. The roads of the vanguard will always have blown-up bridges and large concentrations of vehicles, as well as other obstacles. It is necessary to reckon with these beforehand. They will considerably reduce the speed of the advance of the battery. During winter the nights are long; but in summer and spring, which are the periods best suited for operations, they are very short. Therefore means should be furnished the batteries for removing all obstacles encountered during the advance. For that purpose the commander of the group will maintain a constant liaison with his commands in order that

in the removal of obstacles consideration be given to the weight and size of the artillery pieces and that in the movement of traffic the proper preference be given to the anti-aircraft batteries since these have to be put in position before dawn. Likewise he will see to it that the new position is in a condition to be used. In many cases this requires work that has to be done by the personnel of the Staff if small ground movements are involved or through the Army Corps in case of works that are relatively important.

In order to carry out such a large mission the commander of the group will have a Staff formed in two sections: one for the field and one for liaison and preparation of positions. The former, which will be com-

manded by the assisting lieutenant, will be formed like a field group. Its mission will be to do the topographical work necessary for the group and set up the command posts which are needed for surface fire since the batteries as a rule cannot release personnel for the observation posts, and it must be the group that corrects their fire. The second section has as its mission the preparation of the positions by means of the necessary works, and it furnishes the batteries with guides for directing them to the new positions. It will be commanded by an officer and will be composed of just as many crews as there are batteries in the group. Each crew will be made up of a sergeant, a corporal, and four artillerymen for signal communications; a corporal and various artillerymen with sapper tools and a motorist who will be the liaison agent.

The necessity of organizing the section of liaison and the preparation of positions is stressed because this is one of the needs felt most keenly during operations in our recent war. The commander of the group when reconnoitering the positions that his batteries are to occupy has to communicate his decisions to them and give instructions regarding the work to be done there in order to emplace the battery quickly. The new positions will generally be far apart and also far away from the positions which the batteries occupy at the present moment. It is therefore necessary to have liaison agents to guide each of the batteries to its new position and separate personnel to go there and set up necessary communication equipment since battery personnel will be busy gathering up the wires from the old position. Each crew has to have its own means of transportation. The commander of this section will accompany the commander of the group in reconnoitering the positions and will transmit his orders to the different crews which he has previously placed near the new emplacement which each battery is to occupy. This officer should have a motorcycle with a sidecar.

The most practical setup for an antiaircraft group of the Army Corps was found to be that of two batteries of light cannon consisting of four pieces; one of automatic cannon with six pieces which can be divided into two sections of three pieces each; and one section of 20mm antiaircraft machine guns per battery. It will then have arms for hitting planes at all altitudes and to provide for its own immediate protection.

THE GROUPMENT

All of the antiaircraft artillery of the Army Corps taken together forms a groupment. To it is entrusted the antiaircraft defense of the large unit. The enemy which this artillery has to fight is common to all the batteries since planes have such speed that they do not fly over a single point only of the Army Corps but over all of it. The objective which these batteries have to defend is likewise one, namely, all the troops and services of the large unit.

An Army Corps occupies a zone with definite bound-

aries. In this zone there are a large number of objectives whose individual defense would require a large number of batteries. These batteries are scattered over the terrain but are sited within the line that limits the zone of occupation of the corps. Because all or part of the batteries which defend an objective can defend others from air attacks, it is necessary to keep in mind this multiple mission of the batteries in deploying the antiaircraft defense. The only possible way of doing it is to locate the batteries where it is most practical for the defense of the Army Corps as a unit. This makes it absolutely necessary that only the commanding general himself be in charge of them. The batteries will often and in greater or smaller numbers be put into position within the zone assigned to a division; but they will not for this reason be under the commander of the division since he would limit their movements to the defense of this division—which would be to the detriment of the other divisions and to the general benefit of the Army Corps. If one or several batteries are assigned the exclusive mission of surface fire, as occurred in the Spanish War and which occurs frequently in the present war, the batteries would immediately cease for the time being to remain under the direct orders of the commanding general and would operate under the commander of the Army Corps Artillery. The designation of batteries for these missions would be made by the commander of the groupment. He will, in accordance with orders received from the Corps, indicate to every commander of a group the mission assigned and the name of the commander under whose orders the batteries are to go into action.

The mission of the commander of the groupment is, then, that of the commander of the antiaircraft artillery of the Army Corps, and his tactical superior is the commanding general of the corps. Technically he will, like all the artillery commanders, be under the artillery commander of the Army Corps. He will maintain a direct liaison with him and, if possible, stay in the same locality. Likewise he must maintain a close communication with the antiaircraft services of the Air Force, to secure the alarm services of information. The necessity of connecting these services with his own observation posts and batteries forces him to have at his disposal ample means of transmission, since in order to insure efficient communication between the units which will be adequate in view of their frequent and rapid displacements, communication will have to be maintained from the groupment to the groups and from the groups to the batteries—but not in the opposite direction.

We saw before that the mission assigned to the captains is to fire accurately and rapidly—in other words, a technical mission. That of the commanders of the groups is especially that of selecting positions; that is, one which is mainly tactical. The duty of the commander of the groupment is to study carefully the general organization of the defense in accordance with the orders of the corps command and to designate a

definite mission to each group within it. On the other hand, each battery in its constant changing of position will shift from one division of an Army Corps to another. This requires that in every case it should be informed regarding the stores of food and munitions from which it must get its supplies. It must also know the location of the nearest telephone centers, dressing stations, etc. These needs as well as all those which arise from the operation of vehicles and the maintenance of the material have to be supplied by the staff of the groupment with the means at its disposal. The groupment is the only antiaircraft organization that maintains a direct and constant communication with the corps command.

From what has been said it is clear that the command of the groupment must be given an organization which is adequate in view of the multiple tasks devolving upon it. For that reason it must rely on a Staff in charge of the captains and divided into the following sections:

(a) *Communications and Observation Section.* This section, which will be in charge of an officer, will have as its mission the setting up of the communications required by the antiaircraft network of the Army Corps itself, the construction of the observation posts of the listening network, and the connecting of its own network with those of the Army and the services of the Air Force. Likewise it will be charged with the repairing and replacement of all the communications matériel of the units of the groupment. Consequently it has to be in direct communication with the chief of communication of the Army Corps. In view of the length of the lines which it has to maintain and the rapidity with which these must be put into service, it is necessary for this section to have at its disposal motor vehicles especially constructed so that telephone lines can be put up from them. It must also have an abundant supply of equipment and cable.

(b) *Automobile Section:* This section will be composed of all the vehicles possessed by the units of the groupment. The commanding officer of this section is responsible for their continued serviceability. He will, therefore, maintain a close liaison with the chief of the motor transport of the Army Corps. The vehicles of each battery or Staff will be in charge of an automobile sergeant. In everything having to do with the technical part of the service he will be under the immediate supervision of the chief of the automobile section. In all other matters he will naturally be under the command of his unit.

(c) *Supply Section.* This section will be composed of a very limited personnel. It will have the mission of continually giving information to each unit about the location of the supply centers of food, munitions, fuel, etc., from which the units must constantly get their stocks, as well as about the first-aid station and dressing stations that are closest at hand. The commander of this section has to be in constant communication with the



Spanish twin-mount AA Cannon

commands of these services of the Army Corps and the divisions. By making use of the personnel of his section—which should be selected from those best suited for these purposes—he will insure the provisioning of all the units of the groupment. The mail service of all the units will be likewise under the supervision of this section.

(d) *Billeting Section:* The officer in charge of this section—which will be composed of the entire personnel of officers' servants, dining-room orderlies, despatch runners, writers, and designers, etc.—will supervise the work connected with the administration of the Staff of the groupment and the quarters which it occupies. It is his duty to seek lodgings or set up camps for it.

Besides the Staff the groupment will have a headquarters for the command under the supervision of a captain. In it will be centered the services of information, the liaison with the commands of the Army Corps and divisions, the topographical section, the secretary's office and files. This office, which will have the number of officers and men deemed necessary, will include the liaison officer of the services of antiaircraft and aviation. He will maintain a constant communication between these services and those of the groupment in order that they may function together in perfect harmony. This liaison is extremely important since the batteries should

always know the movement of friendly planes in their own zones of action and receive the alarms coming from other sectors and the listening posts located in the zone of the Army Corps. These are in turn advanced listening and observation posts and with their reports should contribute to the defense of the whole territory. This cooperation will give excellent results. And we had a good example of it in the combined operation of the antiaircraft services and the services of the antiaircraft group of the Army Corps of Galicia in the zone of Castellon during the last year of our war.

Figure 1a (page 13) indicates a scheme for the general organization of the groupment.

TACTICAL EMPLOYMENT

We have considered above two zones of objectives for the enemy aircraft: one exposed only to attacks at low altitudes or dive-bombing attacks in front of the main line of resistance; the other exposed to all kinds of air attacks and situated back of the said line. In figure 2a (page 15) are marked with lines the zone occupied by the vulnerable points, whose importance would justify intense attacks by enemy aircraft. The line which delimits it is that surrounding all the points; the broken line outside of it shows where bombs would be dropped on the said line by bombers attacking the Army Corps from an altitude of 5,000-m. and a velocity of 400 kilometers per hour. The essential difference between the organization of the antiaircraft defense of an Army Corps and that of an objective in rear areas is this, that to defend the latter we could place the batteries far from the objective whereas in the defense with which we are now concerned they must necessarily be situated within the corps area. In order to hit the planes before they reach the line where they drop their bombs, we can adopt the

solution of advancing the batteries considerably. But while this can easily be done in the rear area of the Army Corps and even on the flanks if the corps is not operating alone; it cannot be done in the zone of the forward area since the batteries must, if they are to carry out their antiaircraft mission effectively, take up emplacements with a 360-degree field of fire and very small angles of positions; and they would be easily located and silenced by enemy artillery. Therefore it is not expedient to take these batteries outside of the zone of emplacements of the artillery of the Army Corps, except in case of a break-through at the front or pursuit of the enemy. By placing three batteries of antiaircraft guns at about six kilometers from the line of vigilance we shall obtain ranges (indicated in Figure 2a) enabling us to hit the enemy at four kilometers (36" of flight) in front of the first line where bombs are dropped. This solves the problem to a large extent since the importance of the objectives of the Army Corps increases as we pass from the front to the rear. Three other batteries situated in the zone of the rear area complete the defense and reinforce the fire of the forward batteries.

Against attacks at low altitudes and dive bombing three sections of automatic cannon are placed in the line of resistance covering the advance zone almost completely; three are placed in the zone we might call that of division services; and two are placed in the rearmost zone, which we consider as the zone of services of the Army Corps. The batteries of antiaircraft guns with ranges superior to those of the preceding (see Fig. 2a) cooperate in this defense since we may consider the altitude where the dive begins as 2,000-m. The circles of horizontal projection of the ranges of the automatic cannon have been calculated also for this altitude.



A heavy AA battery on Mont d'Aragon

We see, then, that with three groups of two light batteries and one battery of automatic cannon, plus an additional battery of this latter type we have resolved quite satisfactorily the problem of the antiaircraft defense of an Army Corps even when it is spread out over the greatest extent of terrain. For the purpose of reinforcing the antiaircraft defense and making available a larger number of units for surface fire it would be desirable to form a groupment reserve made up of batteries of automatic cannon independent of the groups indicated above, a light antiaircraft battery, and a company of 20mm machine guns composed of six sections of two pieces each.

In surface fire the batteries can operate in two distinct ways: devoting themselves exclusively to this mission or firing against these objectives only under extraordinary circumstances. In the former case the units which have been assigned these missions will come under the corresponding commander of artillery; in the latter case the surface fire of each unit has to be under a commander who will be designated beforehand. He will have the responsibility of ordering the said battery or section to abandon for the time being the defense of the air. Exceptions are made in cases of *extreme gravity*, critical moments in which the mind and honor of the commander of the battery himself will point out the path of duty, and in which he can receive orders only from the nearest commanding officer or from his own conscience.

Both in a war of movement and in position warfare all the services of the antiaircraft defenses have to function in perfect coordination; and in no case will it be permissible for any battery or section to cease remaining in close communication with the network of the listening posts and the rest of the units. If for any reason it should be impossible to set up an individual telephone system, those that are incomplete will be connected up with the communication networks of the Army Corps. The radio communications can also be used for alarms. From the moment that the alarm is given all the networks will be at the disposal of the batteries; and the latter will never be called except to inform them of the flight of planes, never to ask for information since the functioning of the network would thereby be obstructed and the captain of the battery distracted from his mission. When the alarm is over, the commanders of the units will report to the offices of their group commanders, which will transmit the reports to the command post of the groupment. This post is where all the reports and information from the listening network and the batteries have to be centralized. And the commands of the different echelons of the Army Corps will turn to it for data on an air attack *after it is over*. For giving alarms and also some of the movements of enemy aircraft, the radio can be used. But for information regarding the result of an attack or the flights of friendly planes—which requires absolute secrecy—the radio will be used only if there is absolute certainty its codes will

not be deciphered by the enemy and when there are no other means of rapid communication. Even so, if the information is not extremely urgent, it is preferable to send it by car or motorcycle to a liaison officer. The most satisfactory means of communicating these reports is by telephone, and the best of the telephone systems is that of the groupment itself.

For the deployment of the antiaircraft artillery the Staff of the Army Corps will inform the commander of the groupment every day about the situation of all the troops and services of the Army Corps. In accordance with this information and the requirements of surface fire which will be indicated to it by the artillery commander, the general defense plan will be worked out. The commanders of the groups will give an account of the positions chosen and from them the commander of the groupment will select those that are to be occupied by the batteries; and in accordance with the purposes of the command he will designate for each group commander a zone in which positions for the following day are to be studied, which zone he will try to make as small as possible. He will also indicate to the commanders of the groups which batteries are to cooperate in incidental surface fire and from what commander they are to receive the appropriate orders, and which are to have ground fire as their exclusive mission. Immediately each group commander will order every crew to go to the positions selected and the batteries to move to the positions by night under the direction of motorists. If any battery has been assigned special tasks or ordered to give ground fire, he will personally or through his assistant give concrete instructions to every unit, going to the unit in person since the commanders of the units should not leave their pieces.

The establishment of communications will be the object of special care. In general the Staff will put up one or more lines on which will be set up centers in the places nearest one or more batteries; it is not necessary that they be of the same group. The crews of the groups will connect their batteries, command posts, and observation posts with these centers. For alarms the organic dependence of the unit is disregarded and the networks are used in the manner which is most convenient for obtaining the greatest possible speed.

The supply section of the Staff of the groupment will always insure supplies for each unit.

To conclude: antiaircraft artillery in the present state of the art of war constitutes an army whose mission embraces not only antiaircraft defense but also antitank defense, and includes the different forms of the use of field and coast artillery. The success of operations depends to a large extent on a proper use of it. However, it is necessary to keep in mind that the antiaircraft mission is the principal one, and it can be laid aside only when the safety of the Army Corps whose antiaircraft defense has been entrusted to it is not endangered.

Build



Four phases of balloon building. Left rear: a balloon ready for shipping. Center: inflated balloon under final inspection. Right: completed balloon being inflated. Foreground: balloon waiting final fitting and inflation.

General Tire and Rubber Company Photo

→
Pulling the two halves
of a balloon together.



↑ Fitting the halves together.

←
A worker inside the balloon dragging the inflation sleeve into the balloon. Air is pumped through the inflation sleeve to test for leaks.

ing

BARRAGE BALLOONS

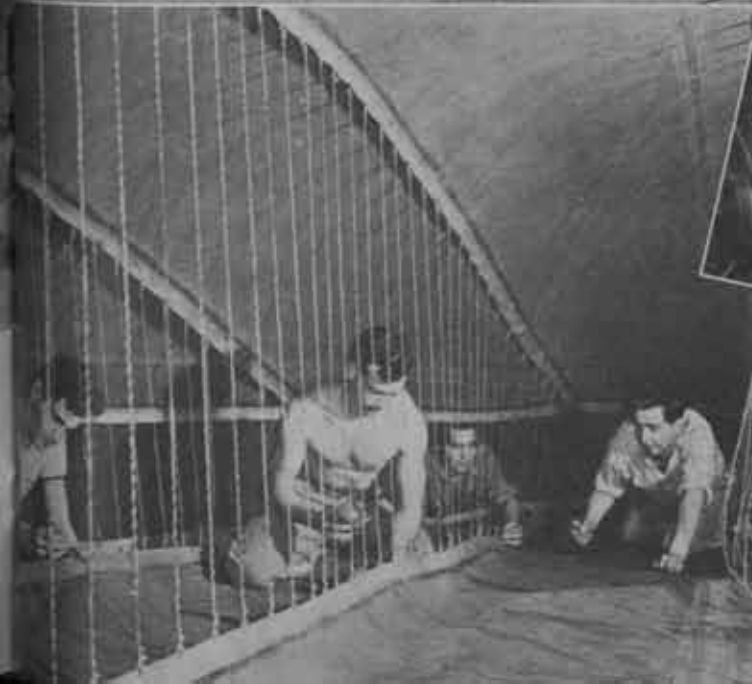


↑ A crew inside the gas bag working on the finishing touches. To inspect the bag, the inside light is turned off, and a light outside covers the fabric inch by inch. Pinholes show up as bright spots of light, and the inside men repair them.

← Double reinforcement goes on the outside of the fins just before the balloons are deflated for shipping.



↑ An interesting operation—rope ends are frayed, then sewn and cemented to rubberized fabric "fingers" for maximum grip. The ropes are fastened to the ground cable of the bag.



← The ropes hold the fin together and aid in giving it the proper shape.

Pearl Harbor

By Sergeant Robert B. Hicks and Corporal Lawrence A. Mills

It was Sunday morning and the ever-present rainbows in Kalihi Valley were in full display. As charge of quarters I had cleaned up the orderly room, and while emptying the waste-paper basket, was attracted by the sight of high-flying planes. This was not unusual, even on Sunday, as Hickam Field was almost in view, and planes were always intermittently flying overhead, but these planes peeled off, one by one, in a screaming dive, regained altitude, and dove again.

Distant thuds could be heard, and some of the early risers in camp climbed on the roof, and could see a huge billow of black smoke arise at Pearl Harbor. Destroyers were steaming out of the channel amid geysers of water. Black puffs appeared in the sky and that meant business. It didn't seem possible that we were actually being attacked, but it was instantly confirmed by a wild shell exploding above and showering us with fragments.

I immediately called the battery out, and we set to work loading ammunition and machine guns on the trucks, and then started for Hickam Field, with the battery lieutenant in command. Kamehameha highway was an endless stream of cars and trucks, but with the help of M.P.'s traffic was soon in line.

Our gun crew kept searching the sky for planes, but most of the activity was over Pearl Harbor and Hickam Field. Naval antiaircraft guns were still throwing up shells which we watched until someone threw what sounded like a package of firecrackers on the floor of the truck. I turned around and there was a stream of tracer bullets raking the road directly behind, and tearing through the car following us, sending it off the road.

There was a Jap plane, which had crept up behind us unnoticed, trying to strafe us with his machine guns. I swung around, Corporal Mills steadied the gun, and we started to pour .50-caliber slugs into him. The rest of the crew used their rifles, and Lieutenant Gillette hung on the running board and blazed away. Smoke streamed from the Jap's engine as he pulled away from us, and sliding into a shallow dive he disappeared behind neighboring buildings and crashed.

We proceeded through Hickam Field gate, past the theater, which was now blazing furiously, and the blasted post exchange (which later contributed tasty bits to our menu), and hoisted our guns to the roof of the administration building. There we had a bird's-eye view of all the surrounding country.

One battleship was a mass of blazing oil. Several other ships were listing badly. Doctors were doing as much as possible at the crowded entrance of the hospital across the road, and the ambulances kept bringing a steady stream of wounded. The huge concrete barracks next to the hangars was being gutted by fire. The large lawn in front was pockmarked with bomb craters which were now being occupied by ground defense forces.

The second attack was soon over, and after putting most of the dirt of Oahu in bags, and hoisting them three stories to our positions, we settled down to a life of continuously being on the alert.

The most inspiring part of December 7 was the post flag filled with vents and holes, but in historic American style, still flying.



Dutch Harbor

By Sergeant Raymond R. Tull and Corporal C. Grant Burton

For three days the fog had hung over the North Pacific and the Bering Sea. Somewhere west of Dutch Harbor on tiny Amakana Island a Japanese task force waited for an opportunity to strike along the Aleutian chain. The soldiers, sailors, and the marines at the new naval base had been expecting a visit from the Jap ever since his treachery at Pearl Harbor.

We had maintained gun crews continuously, especially the antiaircraft defenses, which we all knew were most likely to have the main rôle in any clash with the enemy. There had been practice alerts, simulating the conditions of actual attack. Digging of fox holes and other shelters necessary for the protection of personnel had been done faithfully. All men who were not absolutely necessary to the operation of the main camp area had been moved to safer buildings. There had been as much decentralization as practicable. So, Dutch Harbor was prepared in advance for the attacks from the air which came June 3 and 4.

When the fog began to lift, and the eighteen carrier-based Jap bombers and fighters found their way in, there was, however, a certain element of surprise. Although every person on the island knew that bombing was inevitable, the change from contemplation to reality brought its own shock.

The first warning we ourselves had came when the larger antiaircraft artillery guns opened fire as the enemy came into their maximum range.

As we rushed to our positions, it was easy to distinguish the rising sun on the first two formations which swooped in low over the town of Unalaska across the channel from Dutch Harbor. They were machine gunning as they came, but fortunately, at that early hour, streets were clear, and so casualties were few. A PBV patrol bomber, taxiing along the water for a take off, was strafed, and its crew put out of action. By this time, the enemy was getting into the range of the automatic weapons, which sent up a terrific fire. One of them appeared to lurch, and then slipped down out of forma-

tion, heading for the open water. His crash was observed by a seaplane tender out in the harbor.

Along with the tender was a transport which had just arrived the night before. Both ships were throwing up a heavy barrage of AA fire. The smaller ship brought down a plane, despite the fact that she appeared to be jumping all around in the water, so strong was the sea and the force of her fire.

Apparently respecting our artillery at close range, the bombers came in high over the army camp. Meanwhile, the big guns continued to blaze away. Although several successive groups were badly rocked, and one completely routed by a barrage which accounted for another of the enemy, they were not entirely prevented from doing damage. It was noticeable that the Japanese seemed to know as much about the geography of the country and the location of various installations as we did. This is not surprising when considered in the light of the extensive activity of the Jap fishing fleets along the Aleutians in past years.

As they had demonstrated elsewhere, the enemy pilots were surprisingly accurate in their bombing, and adept in the handling of their ships. A well-aimed stick of five-hundred-pound bombs, and another of incendiaries, hit a barracks, the officers' mess hall, and a couple of warehouses. Army firemen made a heroic attempt to put out the flames. They did succeed in preventing them from spreading to adjacent buildings.

Mainly because of well-planned slit trenches and fox holes, casualties among military personnel were relatively very slight. Once again, it was proved that, with proper protection, men can survive extremely close explosions. It is interesting that there were noticeably fewer soldiers injured among gun batteries like our own than among groups once considered as noncombatant.

The second day, the Japanese did not make their appearance until evening. This time there was ample warning for everyone to reach his assigned position. Waiting for the enemy planes to appear during the



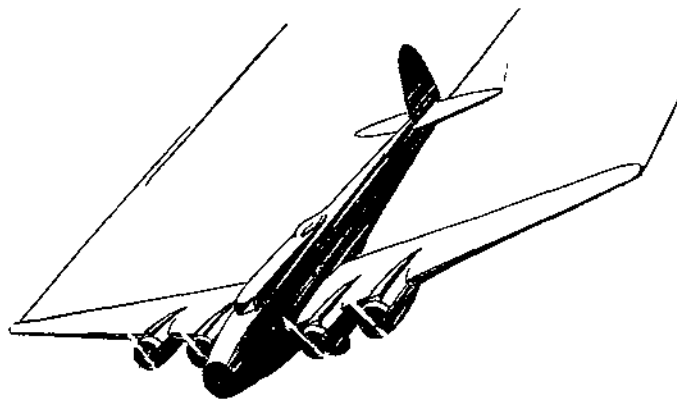
next thirty minutes was probably the most nerve-racking part of the whole affair. Finally, there was a drone of motors, which grew louder and louder, until the planes could be seen with the naked eye, approaching from all directions. As before, all weapons sprang into action. At the first shot, the tension was broken, and the men settled down for a very busy forty or fifty minutes. As contrasted with the first visit the second was made mostly by dive bombers and Zero fighters. Thirty or more planes in all, they came in from all directions again, this time at a height of 5,000 feet. When the gun batteries opened up, and the air began to fill with tracers and bursts, the enemy roared down, concentrating, for the most part, on gun positions, the docks, oil tanks, radio stations, and power plants. One of the first planes to dive placed his 500-pound "egg" squarely in the middle of an oil storage tank. Other ships dived repeatedly upon the old station ship, *Northwestern*, beached near the Dutch Harbor docks.

From our gun position we could see, at intervals, the tremendous columns of smoke rising up from the tanks and the small dock near by. The air was filled with the acrid odor of burning fuel and wood.

How many planes flew back and forth, over and in

front of us, it was hard to tell. It seemed as if there was always a new group to fire upon. One gun crew near ours had just made a direct hit upon one bomber. Before they had time to traverse their 37mm gun to pick up another plane on an incoming diving course, they were hit and put completely out of action by a large bomb. The neighboring crew only a hundred feet away merely increased their fire, calling for more planes and ammunition. Those men from the bombed crew, after doing what they could for their own dead and wounded, joined the second gun and carried on until the end of the attack.

After what seemed like hours, the enemy was finally driven away, and we had an opportunity to relax and take stock of the situation. Although more planes were involved, the actual damage had been relatively slight, less than that of the preceding day. The greatest material loss, but one by no means irreparable, had been that of the oil tanks. The particular loss that affected us most was that of close friends and comrades. It does, however, give us, and those left behind at Dutch Harbor only greater determination to do all we can to win the war. In the two bombings, the Japanese lost six planes. Next time they will lose more.



Using the Crichlow Slide Rule

By Major J. W. Eichinger, Jr., Coast Artillery Corps

1. *Theory of Rule.* While it is possible to obtain solutions of problems by carefully following the rules printed on the slide rule itself, greater accuracy and speed are obtained by intelligent application of fundamental slide-rule theory. Since the printed rules are self-explanatory, it is the purpose of this article to present fundamental slide-rule theory, and illustrate its application to the solution of problems.

a. (1) Slide-rule multiplication and division are possible because multiplication can be accomplished by adding logarithms, and division can be accomplished by subtracting logarithms. The slide rule is simply a mechanical means of adding and subtracting numbers represented by lengths on scales. A movable scale, or adjustable arms, makes it possible to lay two distances end to end and measure their sum.

(2) $10 \times 10 = 10^2 = 100$. The small exponent (2) is the common logarithm of the number, 100. Other logarithms, or exponents of 10, can be found which will give other desired numbers when 10 is raised to that particular power. Complete sets of such exponents are found in tables of logarithms. The following brief explanation will clarify the function of logarithms:

$10^3 =$	1,000
$10^2 =$	100
$10^1 =$	10
$10^{.3} =$	7
$10^{.5} =$	5
$10^{.7} =$	3
$10^{.9} =$	2
$10^0 =$	1

The exponents of 10, in the left column, are the logarithms of the numbers in the column on the right. To

multiply 2×5 , add the corresponding logarithms ($0.3 + 0.7 = 1.0$). Ten is the answer because 1.0 is the logarithm of 10. To divide 1,000 by 100, subtract the logarithm of the divisor from the logarithm of the dividend ($3 - 2 = 1$). Again, the answer is 10.

(3) To eliminate the necessity for adding and subtracting numbers, plot, to any convenient scale, distances representing the logarithms:



Addition and subtraction of the logarithms may now be accomplished graphically by employing a movable scale upon the fixed one.

(4) For greater convenience, place the numbers themselves on the scale. It is now apparent that we have no further use for the logarithms after we have once constructed our scale, so no logarithms are printed on the slide rule. Our slide-rule scale now has the following appearance:



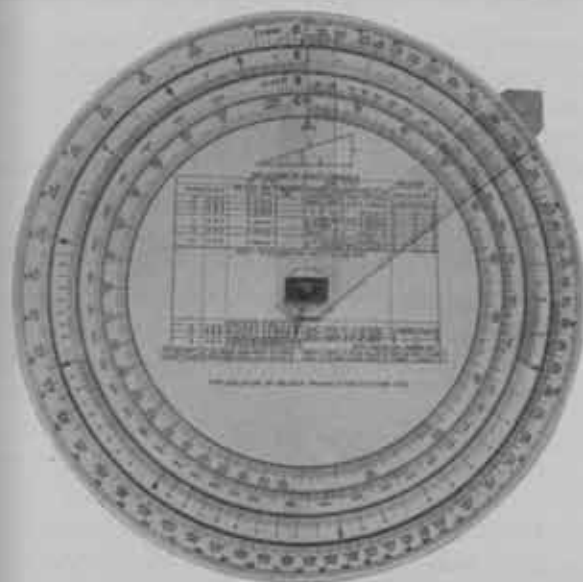
Curving our scale into a circle produces the "E" scale on the Crichlow slide rule. Notice that on the circular slide rule, 1, 10, and 100 are all represented by one point on the scale, the index. When we solve a problem, we get a group of digits for an answer, but no information as to the location of the decimal point. The decimal point must be located from other considerations.

(5) *Examples of numerical calculations:*

Multiply $1,409 \times 153$; short arm on index, long arm on 1,409. This sets the arms at a distance on scale "E" that represents the logarithm of 1,409. By carefully slipping the arms around, this angle can be maintained until the short arm stops on 153. By reading under the long arm on the same scale, we find the answer, 216. By a rough mental calculation, $1,500 \times 200 = 300,000$ and our answer should be somewhat less, namely, 216,000.

Divide $\frac{31}{6.5}$; long arm on 31, short arm on 6.5. The answer is actually set up between the arms of the slide rule, but to read it we must slide the arms until the short arm comes to rest at the index. We now read our answer, 477, under the long arm. Since $\frac{30}{6} = 5$, our answer is 4.77. All calculations involving only numbers are carried out using only the "E" scale, and our results should be accurate to three significant figures.

Three or more numbers are easily handled, and since we have occasion to do this later, the following example should be understood before proceeding:



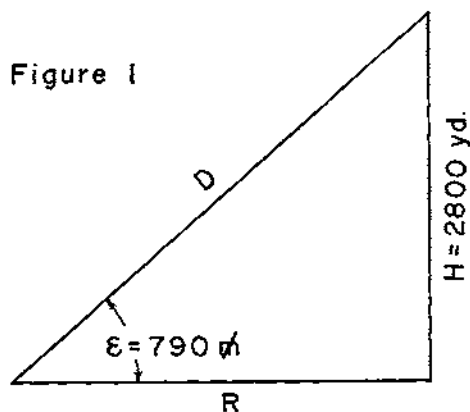
$$\frac{7.9 \times 38,251}{410} = ?$$

It is most convenient to carry out a division first, and later multiply the quotient by the other number. Long arm on 79, short arm on 41, sets the quotient between the arms. It is only necessary to maintain the angle between the arms while sliding them about until the short arm comes to rest at 3,825. The answer, 736, is found under the long arm. To locate the decimal point,

solve the following: $\frac{10 \times 40,000}{400} = 1,000$, and conclude that the answer, to three significant figures, is 736. THINK YOUR WAY THROUGH EACH PROBLEM AND REMEMBER WHERE YOUR ANSWER IS AFTER EACH STEP. IT IS EITHER (1) BETWEEN THE ARMS, OR (2) ON THE SCALE, UNDER THE LONG ARM.

2. *Solution of right triangles.* Additional scales are provided for the solution of triangles. Distances along these scales represents the logarithms of trigonometric functions, and hence may be added and subtracted mechanically in the same manner as distances on the "E" scale.

Figure 1



In Figure 1, the altitude of the right triangle is 2,800 yards, while the angle at the left is 790 mils. To solve for the base, R, set up the following relationship:

$$\cot \epsilon = \frac{R}{H}, \text{ or } R = (\cot 790 \text{ mils}) (2,800)$$

It is unnecessary to evaluate $\cot 790$ mils, since a distance representing its logarithm may be found on scale "C" at the point marked 790. Short arm on index and long arm on 790 (scale "C") sets this logarithm between the arms. To carry out the multiplication, simply move the arms by means of the long one (maintaining the proper angle between them) until the short arm stops at 28 on scale "E." Under the long arm on scale "E" is found the answer, 286, which is obviously 2,860 yards, to an accuracy of three significant figures.

b. To solve for D in Figure 1, use the sine function: $\sin 790 = \frac{2,800}{D}$, or $D = \frac{1}{\sin 790} (2,800)$

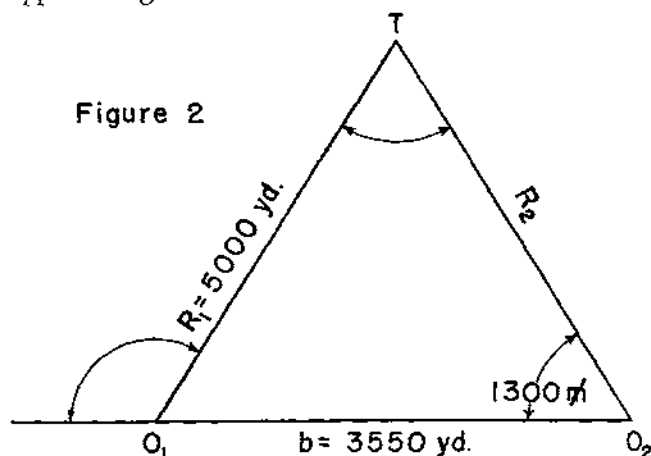
Since distance around scale "D" represent logarithms of the reciprocals of the sines of various angles, this

computation is handled as a multiplication. Short arm on index, long arm on 790 (scale "D"), sets the logarithm of $\frac{1}{\sin 790}$ between the arms. To add this to the logarithm of 2,800, slide the arms until the short arm stops at 28 on scale "E." Under the long arm, read the answer 3,995, in which the last digit is estimated.

c. The third angle of the triangle may be determined by subtracting 790 from 1,600, and then all the elements of the triangle are known. *Intelligent application of these principles permits the solution of any right triangle problem without reference to the printed rules.*

3. *Solution of oblique triangles.*—These problems are solved by the application of the law of sines, proof of which may be found in trigonometry textbooks. *The sides of a triangle are proportional to the sines of the opposite angles.*

Figure 2



a. To determine angle T in Figure 2, set up the following proportion by using the law of sines:

$$\frac{3,550 \text{ yards}}{\sin T \text{ mils}} = \frac{5,000}{\sin 1,300 \text{ mils}}$$

$$\text{Rearrange the terms: } \frac{1}{\sin T \text{ mils}} = \frac{5,000}{3,550 \sin 1,300 \text{ mils}}$$

We want to solve for $\frac{1}{\sin T \text{ mils}}$ because our slide rule is made to give us the value of T directly when a distance representing the logarithm of this value is determined on scale "D." First, carry out the division of 5,000 by 3,550. Placing the long arm on 5 (scale "E") and the short arm on 355 (same scale) accomplishes this with the answer represented by the angular displacement of the arms. Without stopping to evaluate this, simply slide the arms (retaining the proper angle between them) until the short arm stops at 1,300 (scale "D"). By reading on scale "D" under the long arm, we have multiplied the quotient of our first operation by

$\frac{1}{\sin 1,300 \text{ mils}}$ and completed the computation. A useful rule of thumb for obtaining the proper settings without having to rearrange terms is as follows: *set up the original proportion so that the unknown quantity (whether a distance or an angle) is in the lower left cor-*

ner. Go clockwise around the circle, short arm, long arm, short arm, long arm, starting with the upper left number.

$$\frac{3,550 \text{ yards}}{\sin T \text{ mils}} = \frac{5,000 \text{ yards}}{\sin 1,300 \text{ mils}}$$

Following the above rule, set the *short arm* on 3,550 and *long arm* on 5,000 (both on scale "E"). Now, slide the arms, without changing the angle between them, and stop when the *short arm* rests on 1,300 (scale "D"). Under the *long arm* on scale "D" read the answer, 762 mils.

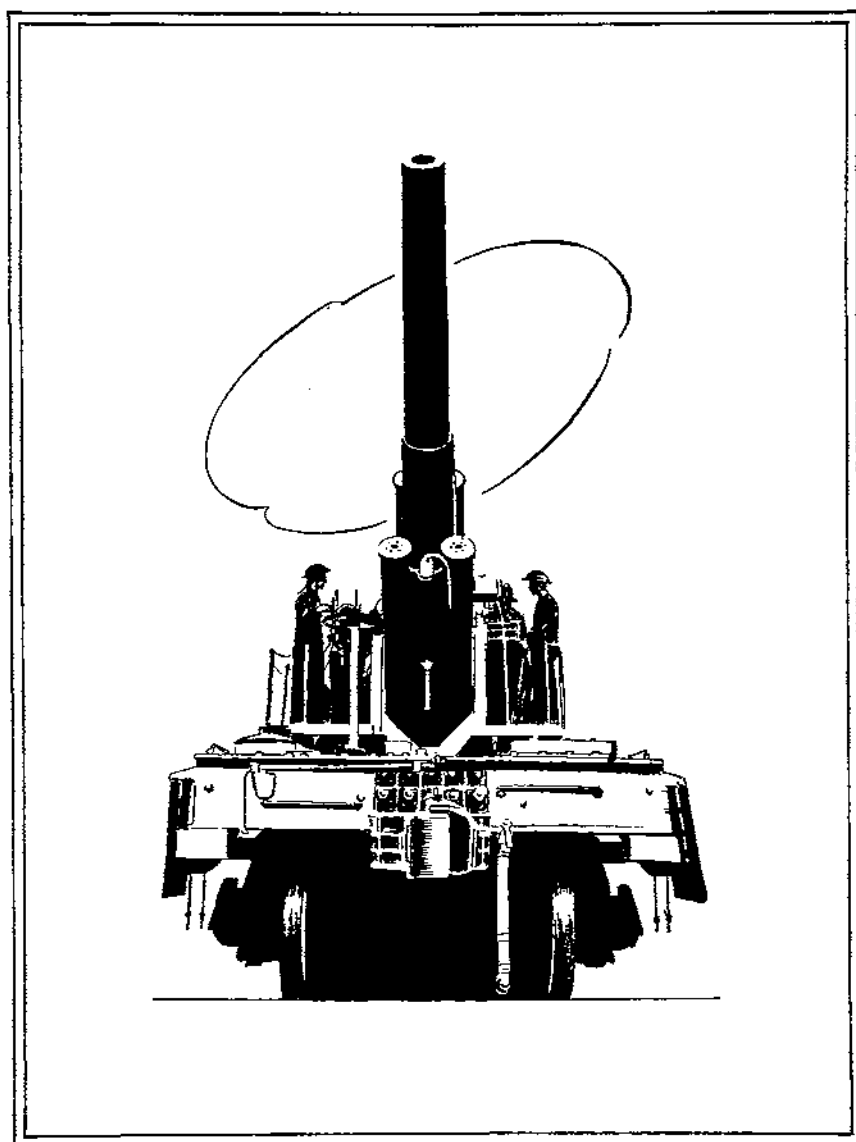
b. Since the exterior angle on the left is equal to the sum of the two opposite interior angles, it is now evaluated:

$$1,300 + 762 = 2,062 \text{ mils} = O_1$$

c. To compute side R_2 , set up the following proportion:

$$\frac{\sin 2,062}{R_2} = \frac{\sin 762}{3,550}$$

Since the sine of an angle is the same as the sine of its supplement, it makes no difference in setting up the sine law proportion whether we employ the exterior or interior angle at O_1 . Short arm on 2,062 (scale "D"), long arm on 762 (scale "D"), slide to short arm on 3,550 (scale "E") and under the long arm read $R_2 = 4,690$ yards (scale "D"). All of the elements of the triangle have now been determined.



Antiaircraft Command Inspection Team

By Major Stanley W. Luther
Coast Artillery Corps

One of the most important functions of all commands is supervision. The will of the Commander is expressed in his published orders. The effectiveness of these published directives is dependent to a very considerable degree on the supervision exercised by the Commander and his Staff over the subordinate elements of the command. This function cannot be carried out from headquarters alone. Effective supervision requires getting out of the office and visiting the place where the activity is being carried on. Efficient supervision means observing carefully, asking pertinent questions, and conducting inspections. It is axiomatic that units which have won excellent or superior ratings have been commanded by an officer who used his staff properly to carry on the office work and used his own time and energy to get out with the troops.

Since the supervision of training is a primary function of the Antiaircraft Command, and since the antiaircraft training centers are distributed geographically across the country, getting out of the office to the activity assumes even more importance because of the magnitude of the job. In addition to the inspections made by the Commanding General of the Antiaircraft Command, inspection teams are sent out to represent him in inspecting the units in training at the antiaircraft replacement training centers, antiaircraft artillery training centers, and the barrage balloon training center. The mission of these teams is to determine for the Commanding General the efficiency of training, the state of training, and the readiness of each unit for field service in a theatre of operations, as well as to be of assistance to the training center concerned by ascertaining its needs for equipment, training aids, or any other additional facilities.

The inspection teams are composed of from three to five members of the staff of the headquarters, usually not over two officers from any one division participating on any one team. This duty is rotated among the divisions to enable as many officers as possible to visit the various training centers, and thereby profit from the first-hand knowledge to be obtained.

With the advantages to be gained by having a team visit each training center frequently, it has been determined that teams will inspect training centers at least once in every two months regardless of the number of units or status of training. It is felt that whether or not the units are in a state of training warranting inspection, the periodic appearance of representatives of the Commanding General to conduct an inspection will be highly beneficial to the training center commander, and

(J.N. 341)

Antiaircraft Command Training Inspection

DATE	AATC	UNIT	CA(AA)
		RATING S-X-VS-SAT-U	REMARKS
1. BASIC SUBJECTS			
a. Infantry Drill		X	_____
b. Individual Equipment		VS	Mess kits dirty
c. Physical Training			
(1) Facilities		S	Superior Obstacle course.
(2) Condition of Troops		X	_____
(3) Foot Marches and Overnight Bivouacs		X	_____
d. General Subjects			
(1) Articles of War		SAT	T.F. No. 11-235 Not shown.
(2) First Aid and Military Sanitation		VS	_____
(3) Individual Defense		X	_____
(4) Interior Guard		X	_____
(5) Military Courtesy		X	_____
(6) Personal Hygiene		VS	_____
(7) Map and Aerial Photo Reading		SAT	No maps
(8) Identification of Aircraft		S	Sup. Training Aids.
e. Use of Weapons			
(1) Marksmanship Training Aids and Facilities		X	_____
(2) Small Arms Firing		X	_____
(3) Bayonet Course and Instruction		S	_____
2. TECHNICAL SUBJECTS			
a. Artillery Drill and Gunners Instruction			
(1) Proficiency of Drill		X	_____
(2) Condition of Matériel		X	_____
(3) Maintenance Specialists		VS	2 E.M. at school
b. Artillery Firing			
(1) Organization		X	_____
(2) Functioning of Matériel		X	_____
(3) Functioning of Personnel		VS	N.C.O. weak
(4) Results		X	_____
c. Motor Transportation			
(1) 1st Echelon—Drivers		S	Good instruction
(2) 2nd Echelon, Maintenance, Personnel		X	_____
(3) 2nd Echelon, Maintenance Facilities		X	_____
(4) Condition of Transportation		X	_____
3. TACTICAL SUBJECTS			
a. Field Exercise			
(1) Field Orders		SAT	Poorly given
(2) S. O. P.		S	Excell S.O.P. in all units.
(3) Reconnaissance and Occupation		X	_____
(4) Movements		VS	_____
(5) Communications		X	_____
(6) Bivouac		S	_____
(7) Camouflage		VS	_____
(8) Field Fortification		VS	_____
(9) Medical Detachment		VS	Lack Training
(10) Security		X	_____
(11) Combat Intelligence		X	_____
b. Personnel			
(1) Proficiency of Officers in Gunnery and Matériel		X	_____
(2) Combat Duties, Rotation of Personnel		X	_____
4. ADMINISTRATION			
a. Headquarters		X	_____
b. Supply, Status of Equipment		X	_____
c. Mess		S	_____
d. Quarters		VS	No standard for unit.
e. Staff Functions (S-1, S-2, S-3, S-4)		X	_____
f. Functioning of Tow-Target Squadron		X	_____
g. Unit Schools			
(1) Compliance with AAC Memorandums		S	_____
(2) Instruction		X	_____
5. COMPOSITE GENERAL RATING		X	_____
6. a. Specific subjects to be stressed in subsequent training:			
Movements—Artillery Firing—Concealment—Field Fortifications.			
b. Remarks: With 2 weeks additional training in subjects listed in 6 a, above, this unit will be ready for field service.			

Signature:

BRIG. GENERAL, U. S. A.

(AAC Inspection Form No. 8)

will serve to keep the AAC headquarters up to date on actual conditions in the camps. Where a detailed or definite inspection, as such, is not feasible, the team observes the general organization for training, the methods employed, the progress being made, the corrections of deficiencies previously reported, and offers constructive criticism and presents ideas on training methods and expedients employed in other camps.

In order to maintain uniformly high standards throughout the widely separated training centers, and to insure comparable reports from inspections made by teams whose members are not the same, inspection forms have been made up and distributed to all inspecting officers and to all training centers. These forms are used as a guide in conducting inspections by the Antiaircraft Command teams, and at the same time they are sufficiently detailed and broad enough in scope to be used by training center commanders and their staffs, and by unit commanders in making their own inspections.

The inspection of any one organization will depend upon its state of training, equipment, and personnel. Newly activated units are inspected with a view to determining their progress with MTP training, the proficiency of officers and noncommissioned officers and cadre, and adequacy of training aids and literature. Units that are in an advance state of training are given special problems in tactics and gunnery to determine their fitness for field service.

A training inspection may include the following:

- a. Infantry drill, ceremonies, individual field inspection.
- b. Motor transportation.
- c. Night movement and occupation of position.
- d. A day movement and occupation of position.
- e. Field exercises.
- f. Camouflage, concealment, and security against ground and air attack when in position and in convoy.
- g. Messes, both in camp and in bivouac.
- h. Training of medical detachment.
- i. Barracks.

- j. Care and maintenance of equipment.
- k. Command and staff procedure.
- l. Schools, unit and centralized.
- m. Basic subjects.
- n. Artillery drill.
- o. Artillery firing.

At the conclusion of the inspection, an AAC inspection form No. 8, for each unit inspected, is completed and furnished the Training Center Commander. (See Figure 1.) This form, with the verbal remarks of the senior officer of the team, completes the actual inspection.

A full report to the Commanding General of the Antiaircraft Command, suitable for reference to the Commanding Officer of the training center inspected, is made by the senior member of the team. This report contains the general impression of the organization at the training center, the deficiencies noted, and recommendations in such a form as to constitute a constructive criticism of the activities inspected.

Periodically a memorandum containing all the constructive criticisms of the training centers inspected is sent to all commanding officers. This medium of exchange of ideas, training aids, and common mistakes noted, will serve to produce better units for field service.

In addition to the direct accomplishment of the primary mission, the inspection teams also achieve several other highly desirable results. The personal contacts between the officers in the field and those from the headquarters serve to solve many of the problems and questions which are usually not included in official correspondence. The members of the team gain valuable experience by observing the methods used to carry out training directives sent out by the headquarters, by observing new equipment in operation, by getting to know personally the training center personnel, and by being required to evaluate the prescribed training. These experiences and observations are then made available to all training centers of the command through training literature from the AAC headquarters and through the personal contacts of succeeding inspections to other training centers.



This much can be said with assurance. The year 1943 will be a fighting year—a fighting year for American troops. We will be fighting in Europe and Asia and Africa and on the seven seas.—HON. ROBERT P. PATTERSON.

Our Expanding Antiaircraft*

By Lieutenant General Lesley J. McNair

Many thanks for asking me here today. I feel honored to meet this large graduating class as they join the commissioned ranks of our Army. Thanks to the School and its Faculty for reaching such a notable production so soon after the birth of this school. I feel sure that your quality is as good as your quantity.

As late as spring, General Green undertook the staggering task of training all our antiaircraft units to the point where they either could be sent overseas or could take their posts in defense of our home shores. At that time the antiaircraft was not so far past its peace footing—at least it had not embarked on the great expansion now under way. With training establishments distributed literally over the entire United States, he took over full control and with it responsibility for both the good and the bad in antiaircrafting.

During these trying early months, doubtless carrying more trouble than joy, he worked quietly and unceasingly, as is his way, backed by his great constructive ability and long experience. I congratulate the School here and the Army on having General Green as head antiaircraftman. You young graduates will be proud in the years to come that you were privileged to study at this school and emerge with a whole skin. You are richer for having learned under the skilled hands and heads of these old timers here, who have pioneered in both war and peace—and from the younger instructors who have been selected for their outstanding ability.

Antiaircraft no longer is new, although not too ancient, for it is younger than I. I recall well the antiaircraft artillery of the early World War days—75mm French field guns, with the spade on the ground and the wheels resting on a horizontal wheel mounted on a central post. At least they could fire skyward and in all directions. Fire control was not too perfect. Antiaircraft proved itself even during those days. The antiaircraft defense of Paris especially was a high tribute to the technical greatness of the French, and introduced many developments in antiaircraft matériel and gunnery.

Then came the growth of air power after the war, with its bitter controversies about antiaircraft. Air enthusiasts belittled its effectiveness, but all nations held to it as an essential weapon. The current war—so much aerial—has confirmed definitely that antiaircraft is a vital form of defense, not only of ground establishments, but of ground combat units as well. Our antiaircraft strength of 1943 will be double that of 1942.

About every combat unit insists on its own private antiaircraft unit, and possibly that state of affairs will

come to pass. However, the present policy is that the greater part of antiaircraft units properly should be pooled organically, and distributed from time to time where most needed. For example, if troops have to pass through a defile and are vulnerable to air attack there, it is absurd to give each unit enough antiaircraft to protect it while in the defile. No, the antiaircraft should be concentrated in the defile, where it can protect all units passing through.

Modern antiaircraft has a formidable array of technique—far beyond my limited comprehension. May you master it all, and may it—the technique—grow more so and you more masterful—but only so long as the result is more effective firing under service conditions. High technique and the attendant gadgets are but a means to an end—effect against the enemy. Do not allow yourself to become a technician only. Become and remain first and last a fighting man—master of your domain equally when conditions permit the most precise determinations as when the struggle is a knock-down-and-drag-out affair with no holds barred. You officers can do most of the deep, dark stuff, but make your outfit preëminently one of hustling doers in the field.

The story of the German 88 now is oft-told. Built to take its place among the best of antiaircraft guns, the 88 has been hitting in the air against planes and on the ground against both artillery and tanks. Its success probably has been due as much—perhaps more—to its aggressive handling as to the high technique employed.

We ourselves now are doing things overseas. There is the recent affair where three rifle companies of the enemy attacked our airdrome and drove back the defending force. The enemy was about to capture the airdrome when they ran into our antiaircraft guns—50 calibers—who decided to stick. The gunners lowered their aim from the sky to the ground and mowed down the attackers. The airdrome was held. No doubt the technique of those antiaircrafters was good, but their guts were the dominant factor.

Like most of our combat elements of these days, you act by fire, and are effective in battle largely as you fire well. We stress service practice as much as we can, even though at times ammunition is scarce. We assert that no matter how sketchy a soldier's training may be if time is short, he at least learns to fire his weapon.

We have the man power—the finest we could ask. The question is our leaders. It is probable, of course, that your duties will be subordinate for a time, but still there is work to be done by the men under you; they must work as a team; and you are the leader of the team.

First, you yourself must know your own job, and that of every man under you. If you do, your men will know

*Address delivered by General McNair, Commanding General, Army Ground Forces, at graduation ceremonies at Antiaircraft Artillery Officer Candidate School, Camp Davis, October 29.

that you know your stuff; they will respect you and follow, not so much because you have legal authority, as because you know more than they do and can help them to success. On the other hand, unless they feel you can lead them successfully—especially when lives are at stake—there will be the doubt and the wavering which invite failure. It is you who must look ahead, make plans, think of things which others forget, caution, encourage, urge, admonish, punish, praise, reward—do the things that spur men to the heights, make them forget that they are tired and refuse to be stopped or licked. Every one of you is a potential leader or you would not be here.

Be true to yourself, your loved ones, and your Country by delivering the leadership which is our greatest need in all ranks today.

Gentlemen of the Graduating Class, I congratulate you; first because you have won the right to be here in fair competition with your fellows, second because you have succeeded in this course while some unfortunately have failed. You have proved your merit, and have earned selection as a leader. May you have rich success and justify the confidence which Camp Davis has in you and which your commission expresses in formal language. My best wishes to you all.



“This is not only a war of soldiers in uniform, it is a war of the people—of all the people—and it must be fought, not only on the battlefield, but in the cities and in the villages, in the factories and on the farms, in the home and in the heart of every man, woman and child who loves freedom! . . . This is the people’s war! It is our war! We are the fighters! Fight it, then! Fight it with all that is in us! And may God defend the right.”—From the motion picture “*Mrs. Miniver*.”

Melanesian Outpost

By Lieutenant Colonel Henry G. Fowler, Coast Artillery Corps

January 23.

At sea.

If it were not for the immeasurable span of time that must elapse before my return, I would be completely happy doing a job that has to be done with a gang that is itching to do it. Never before have I commanded a unit that I could be so proud of. Officers and men are in high spirits, and had I picked them individually I could not have done a better job.

January 25.

The wind blew yesterday and there were many lost meals. My record as a good sailor continues, and I have had fun kidding some of the youngsters who could not take it. We kept busy finding things to keep the men occupied. Fortunately, I brought along a series of prepared lectures dealing with our entry into the war, and with the logistics, tactics and strategy of our enemies. Preparation for those along with two rubbers of bridge filled in yesterday. We were joined by a Catholic chaplain who returned from Hawaii just in time to come out with us. The game was punctuated by several temporary or permanent disappearances, for by 9:00 P.M. the sea was really kicking up.

February 14.

The longer this voyage continues, the prouder I am of this army and navy of ours, and the way they do things. The spirit of the men is marvelous. It has required practically no effort on the part of the officers to keep them in fine fettle. A limited instruction program together with their own resources for amusement have done the trick. There is also an evident quiet resolve that they will give everything they have to win this fight. It is all very reassuring.

An Australian Port, March 2.

Though we finally disembarked Friday, this is the first chance I have had to write to you. We are up country a bit in a town called B—for a shakedown after the trip and I expect we shall be here long enough to get some pay and some letters from home. The outlook is still quiet as far as we are concerned. In town today for a look around and some final instructions. All very interesting and the people are marvelous, very happy that we are here.

March 5.

We have friends—real friends—in another quarter of the globe now. In a little while, I will be able to tell you the whole story of a very wonderful experience. I write cryptically not to hide it from you but solely lest it fall into wrong hands. The espionage system of our

enemies is unbelievable, particularly as to the people involved.

Later—much.

We are in a most magnificent and picturesque country. There were hectic days of debarkation and disposition of troops. I think this place and the life these people lead under normal conditions would make you forget even your beloved New York. Of course, we have arrived at the tail end of their summer which may have been pretty hot. The climate right now is all that could be desired. We are all well so far except Lieutenant Jones whom we left in Australia. He'll catch up with us soon, though.

Easter Sunday.

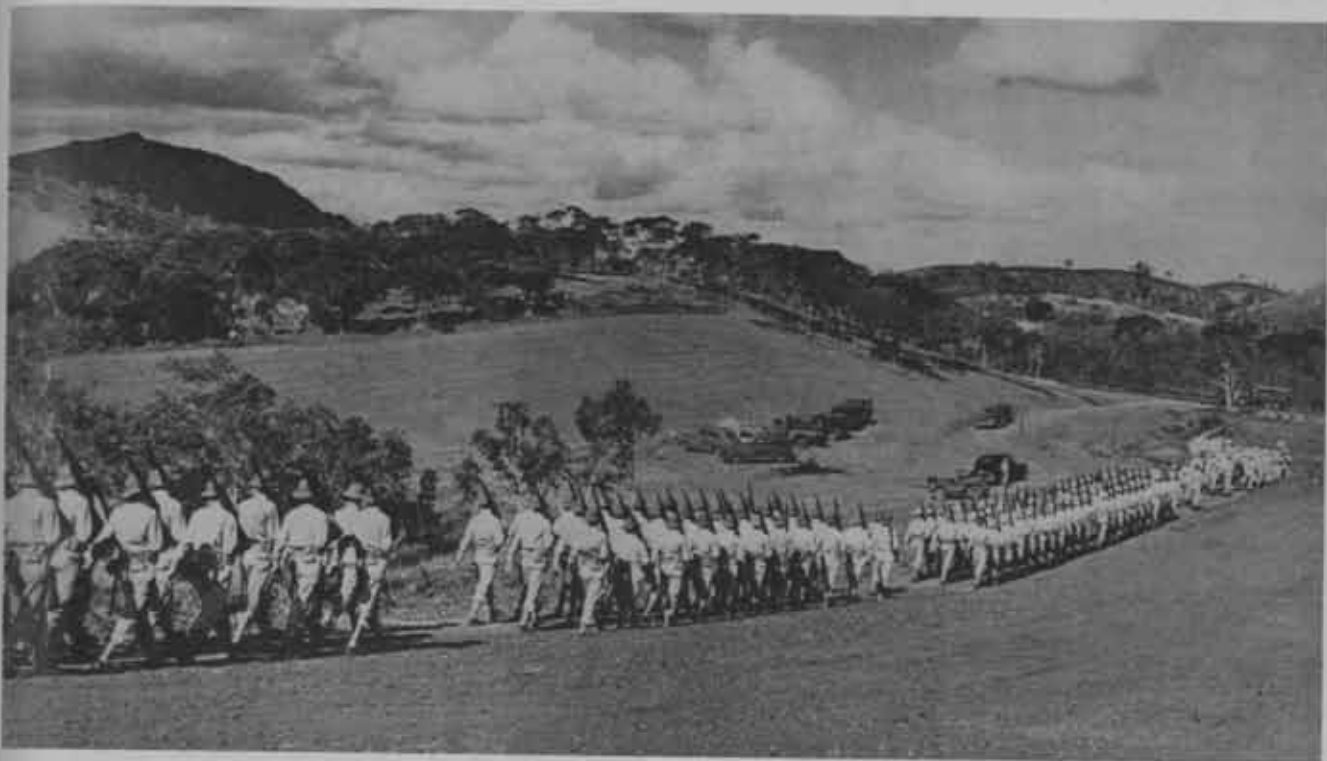
I can never be grateful enough to the supply officers at the Virginia camp who sent on the most perfect equipment in the book. Also to Doc Jones for my handsome G.I. glasses which arrived with the first mail and are saving my eyes when studying French maps. My French is improving rapidly what with Free French officers under me and indigenes to inspect.

New Caledonia, April 8.

I am now permitted to tell you where we are. If it were not so far from home, this place would be a veritable heaven. Tonight is actually cool. To seaward, splashed with nacre where coral reefs come almost to the surface and dotted with mountainous small isles, black against a flaming sunset, a smooth velvet of aquamarine stretches out to the white line where the ocean billows beat against the barrier reef. Turn about, and you face the bare slopes of ridge after ridge thrusting clouds that foam and tumble out of nowhere. The whole island is a geologist's dream with more peculiar rock formations crowded into its 7,500 square miles than any other area twice its size. The mineral outcroppings give to distant ranges more vivid colors than our own Southwest—more flamboyant than Frederic Remington paintings.

Sunday, April 19.

There are some 15,000 white people here, and they are mostly well off having done very well with the rich ores which the island pushes up in your face. I had my first real enjoyment today fishing with Dr. Mangin and then returning to his home to meet a large party of week-end guests as genuine people as there are in Noumea, or anywhere for that matter. My French is coming along so well that I hardly noticed it was a different land. The talk, both small and serious, was just as ours would be.



American troops in a strange land.

U. S. Army Photo

May 17.

I wonder if it is as ideal a day in Babylon as it is here. For us, the fall is two-thirds over, but it is more like early September at home. Strangely, we have none of the weather extremes that we are accustomed to in the States. The "rainy" season has passed without much more rainfall than a wild April back there. The gentlest sort of rains—the sole discomfort being the wind which has been annoying, at intervals, for two or three days at a time. Once or twice, it has been cool enough to wear a sweater under my cotton shirt. Perhaps, with the advent of winter in June, we shall really have to dress warmly. Overcast days are a rarity. Actually, our rains come only when the fleecy clouds drift in from the sea and pile up against the mountains. There they just dump out their little load of water, and the sun shines again.

However, if it were not for the everchanging magnificence of scene, and the constant problem of improving our organization, this would be a very dull life. For diversion, we have a can of P.X. beer now and then—nothing more. The men have athletic equipment and radios and victrolas and are kept busy enough so that those small amusements suffice. The morale, in consequence, is excellent. In the same way, the officers are busy enough not to worry about filling their time. But it doesn't give us much to write home about. We've had a bit of political excitement locally, but I can't write you the details yet.

April 21.

My first real introduction to the Noumeans reminds me that you might like to know something of them. My

impression is that they are true French rejuvenated. There seems to be little of the venality to which the Republic really succumbed before the Boches finished the job. On the contrary, the city (town) is identical with any of our own where some local resource of value is being exploited. Everyone appears well off. The women are quite fashionably dressed, although I suspect that a good part of their wardrobes was acquired in Australia before the Japs stepped out. The men have the free and easy hospitality of our pioneer districts. Perhaps the one difference is the lack of any large section of imported cheap labor.

True, there are Javanese and Tonkinese imported for the Nickel Works, but they do not represent any large part of the population. There is some squalor in the small settlements which they occupy, but, for the greater part, almost any home in this island has an air of individuality and picturesqueness that sets it far above most of the sordid dwellings of our poorer, less industrious classes. Possibly, the lack of crowding has something to do with that.

The indigénés (natives) are a rather remarkable race much like the African blacks in their simplicity, but with an innate dignity and pride that, I think, is the reason that forced the French to bring in the Javanese and Tonkinese. The Kanaka cannot be driven. On the other hand, he has great respect for the whites and is a willing worker at dignified tasks. Physically, they are powerful in build and no effort feazes them. They make excellent soldiers. In spite of their apparent lack of comprehension of normal sanitary measures, they keep their persons immaculate. It would appear that,

in the past, when one of their villages has become uninhabitable, they have simply moved on and built another.

Men and women alike are given to decking themselves in flowers and bright-colored clothes. I have not yet learned their religious history, but they have rites of all kinds. Hardly a week passes that they do not celebrate some sort of festival. Unlike the Africans, rhythm and music do not seem to appeal to them, and they are singularly taciturn. In that respect, they are more like the American Indian. When pleased, they are apt to sound like a kennel of dogs at feeding.

We have some of them working at one of the positions, and one was severely cut on the foot—they go barefoot always—in fact, it would be hard to fit them with shoes. A medical aid man quickly bandaged the foot and told the Kanaka to rest until we could get the ambulance for him. After a few restless moments, he disappeared into the woods and returned with some herbs from which he squeezed a few drops of juice into the wound and a bit later, rejoined his fellows and continued to work the rest of the day. Whatever he used stopped the bleeding.

May 20.

At the time we were in Australia, the censorship was very strict in order to avoid letting people know how we were using it as a stopover for troops moving to various posts in the Pacific, so I am not sure that I told you much about it, if anything. After landing we were sent inland about a hundred miles to the town of B——, where all artillery troops in the Task Force were billeted in the homes of the people. Major Ketz and I landed with Mr. Albert M. Sullivan, Nettle Street, headmaster of the Violet Street School, and a veteran of Gallipoli. Nowhere, with the possible exception of Greensboro, North Carolina, have I ever experienced such wholesale hospitality as the town of B—— put out. The Sullivans proved to be perfect host and hostess as were their two daughters. One son was lost at Tobruk, and the other was in service in northern Australia expecting to go on to Singapore.

May 31.

We are finally getting fresh meat once in a while—reindeer meat that the boys shoot on the island. Story has it that the wife of one of the French "metropolitans" (government appointees) brought a pair and they bid fair, for a time, to overrun the island. So much so that they actually employed deerslayers. Perhaps due to the soft climate, the meat is very tender and tasty. Introduction of reindeer completely eliminated cannibalism which once was a part of the native rites here. There are tremendous herds of cattle, too, on the island now raised primarily for hides. Practically no grain is grown, so the cattle are lean and give little milk—that not fit to drink.

June 2.

In the past week, I have really seen more of the



A native Kanaka employee of the United States Army gets some dental work. *U. S. Army Photo*

Island than before. My first trips up country were confined primarily to reconnaissance, and we left the main road—the only road—only at points where we cut down to the shore. About all we saw were towns, or what pass for towns, Dumbea, Paila, Tomo, Boulon-pari, La Foa, Moindon and Bourail.

This time, we really dug back into the hills. North of Port Laguerre, we ran into a typical village indigenous, that of the Tribe Nahnouin. Nestled back in a deep cleft between mountain ridges rising from 500 to 1,000 feet, a gentler sloping valley opening typically to the southwest ends in a broad plateau backed by a sheer bare mountain face topped by a knife-edge ridge of brick-red rock. Among the banyan trees, each spreading broadly from a maze of twisted trunks, there were perhaps fifty native huts with walls of eucalyptus bark and roofs of thatch.

The approach to the village is along a former sentier destribus, widened in this machine age to an auto trail with tall grass growing between the ruts so that the peep appears to be waving its way through. (We travelled the good road in a staff car with the peep trailing for emergency work.) The flat basin of the entrant valley is thickly grown with eucalypti which furnish native building materials and the marsh grasses for roofing. A little higher in the mild ascent, the eucalypti thin down a bit amid wide fields of tawny grass which pastures most of the big herds of the "station" owners, or broussards. Next comes the sturdy rail fence and gate bearing the legend Tribu (1903) Nahnouin which

marks the beginning of the tribal lands where the valley begins to narrow down, and the trail steepens.

Immediately within the fence, begin small stands of banana trees in clearings, beyond which you can sense, rather than see, the steeply terraced slopes of the valley sides. For centuries, the natives have grown their taro and yams on these side hill terraces which they gouge out so as to get natural irrigation. Fertile as it is, they ignore the valley flats because of the effort required to keep out the luxuriant weeds. The terrace system, reduces their agricultural problem to a simple matter of planting and reaping with none of the arduous labor of cultivation. It is easy to understand their philosophy about work when food is to be had so simply.

The Kanaka is by no means lazy. He is a superb specimen of human energy, ability and power. But he sees no reason to waste effort on anything which Nature will provide so prodigally as she does food in this Eden. Much better do something to be proud of. For instance, why not pick up a small stone, then whistle softly the mating call of—(some handsome big bird that I have not yet learned to name) and, when the male circles inquisitively overhead, sock him squarely in the eye with the stone.

Or, better yet, carve yourself a long straight spear of heavy hardwood and go down to the deep waters at the river mouth, wading cautiously in along the adjacent reef, then poise silently until a big pink fish noses ponderously up into the running water and thrust him so quickly that his sudden rush to escape ends abruptly in a futile wriggle on your spearhead.

Or, best of all, sum all these things up, along with how you paddled out, how you stopped to scan the water and paddled on, how you spied a school of fish and cast a line far ahead and hauled hard to bring in the gleaming bonita—all this rolled into one violent pantomime, your feet beating constantly to create the illusion of motion, while, for a full twenty minutes, you regale your native audience to the accompaniment of their chants and shouts.

June 5.

Someone has dubbed us the "Americal division" accent on the second syllable. It apparently will be a miracle if we ever see action! The Coral Sea episode fixed that.

June 13.

We are catching a foretaste of the second rainy season which is normal in July and August. The result is a rapid succession of showers and rainbows during the day and downpours at night. In town it means nothing, but the boys in the "Bush" have to wallow around in mud a good part of the time. Not that they appear to mind it. The morale is marvelous.

July 5.

Just returned from a two day trip to parts of the Island which I had not seen. A most beautiful and thrilling experience! We crossed from La Foa to Canala. After leaving the main road, we climbed it

seemed forever. Up and up, until at last, we seemed atop the world. Abruptly, as we crossed a saddle in the Chaîne Centrale, the whole picture changed. It was like jumping directly from the Adirondacks to the mountains of Panama. From the flat coastal plain around La Foa carpeted with long yellow grass under a straggling growth of *nisouli* (*eucalyptus*), we had wound our way up through a gradually narrowing valley. As we neared the top, the steep-sided, deep gullies became more and more densely packed with heavy timber. Once over the crest, we ran straight into luxuriant tropical growth with palms of all kinds grouped thickly in amongst kaori and other tall straight trees. Only now and then, as we rounded a sharp nose dropping sheer for a thousand feet or two, could we see out over the black-green mat like a crumpled blanket thrown over the restless form of a rocky giant. Even the grass in a few cleared spots was a deep sea green.

Coming down into the deep valley of Onen Negropo, we passed mile after mile of coffee plantations, forests within forests, the man-high, holly-green coffee trees nestling under the broad kaories. Canala was picturesque for its mission and spotless native villages, but, as our time was limited, we did not stop—hoping to make this before dark. We did, but after one of the most breathtaking rides I ever hope to take. The climb over the Chaîne Centrale was as nothing compared to the narrow path cut in the face of cliffs for five miles between Nakety and Thio—three miles of which were muddy red clay without a straight stretch of more than fifty yards. We crept around in first and four wheel drive all the way, my heart in my mouth in spite of the reassuring thought that thousands of others had made the trip quite safely. I am not sure whether the cold I contracted came from the clammy dampness or from fright.

The trip from Thio back to Boulonpari on the west coast meant another climb to the crest of the Chaîne Centrale over a narrow, winding road. However, the road was dry and seemed tame after our trip of the preceding day. The Thio River runs through a broad valley, one side of which is studded with tremendous igneous boulders—perhaps the result of a final explosion of volcanic masses a mile or two to the south.

One of the things that makes travel about the island so exciting is the abrupt changes of scenery. As you top any ridge, you look down on something entirely new and unique as to coloring and verdure. The only thing that is constant is the hotels which vary only in the degree of murkiness. The food is usually excellent—served in a dingy dining room which, with a bar, composes the main building. Sleeping quarters are in a separate building made up of a row of bedrooms all opening onto a common veranda, or else in small conical buildings, copied from the *indigenés*, set up around the main building. The beds are usually good, but, at Thio, which appears to be a resort town, they compared unfavorably with our army cots.

OBSTACLE COURSE AT

*Three-and-a-half
minutes is par
for this course*



↑ Quite a leap, complete
with pack, rifle, and grin.

→ Up and down, and don't
mind the splinters.



↓ The catwalk is forty feet long, and
it zig-zags. They're still grinning.

↓ Under a fence and over a
wall. This is getting tougher.

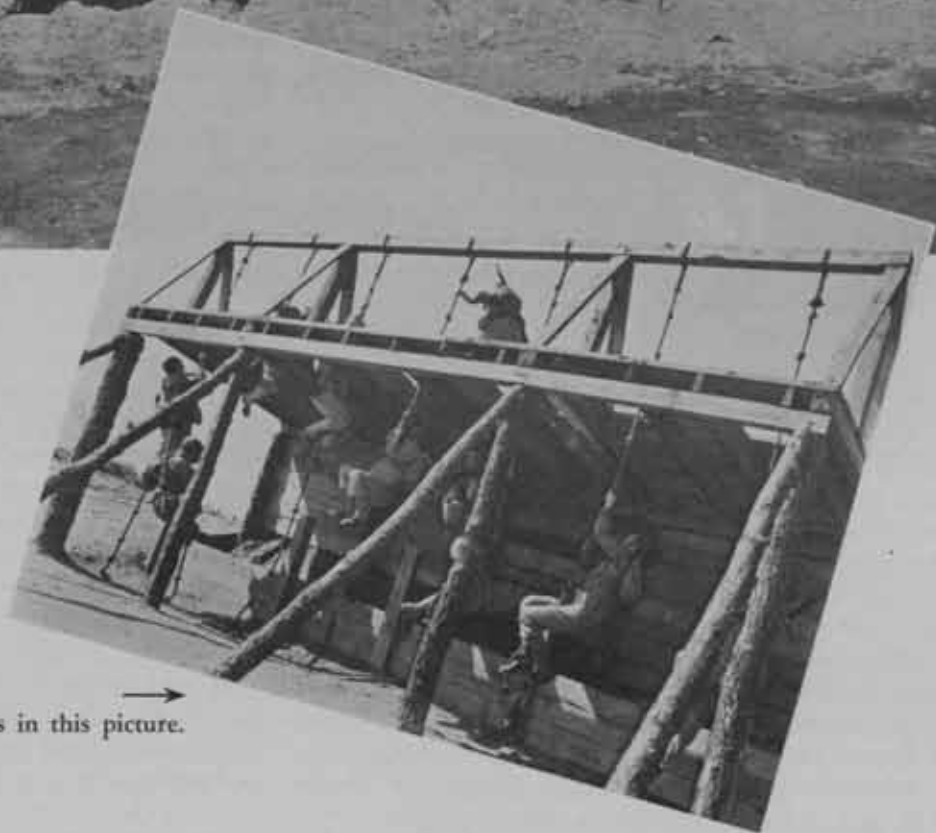


CAMP EDWARDS AATC



↑ The tunnels are two feet square — with pack and rifle, that doesn't leave much room for excess poundage.

.....
Camp Edwards Public Relations Photos
.....



→ The rope climb; no grins in this picture.

↓ Full pack, full gallop, grab the pole, and slide down.

↓ Fifteen feet of horizontal ladders make up the next-to-last obstacle on the course. It's a bath if you slip; there's water in the pit.



Coast Artillery Officer Candidate School

By Lieutenant Robert L. Smirnoff, Coast Artillery Corps

With the increased interest in the Officer Candidate School at Fort Monroe, as indicated in the volume of mail on the subject to the Coast Artillery School, it might be well to present some information about the course and the method of selection of students.

The War Department announced this spring that the Officer Candidate Schools are open to all qualified enlisted men from eighteen to forty-five years of age. The minimum period of service required for admission to the schools has been reduced to three months. This is in accordance with the planned expansion of the present system for providing trained officer leaders for the rapidly expanding Coast Artillery.

The age limits for admission to Officer Candidate Schools have been broadened considerably to coincide with the new induction and enlistment ages. This means that any man between the ages of eighteen and forty-five now serving in the Army, or inducted in the future, who is otherwise qualified, will be eligible for selection as an officer candidate.

Any civilian who has been deferred for dependency from the draft but is physically qualified for a 1-A draft classification can enlist in the Army as a "Volunteer Officer Candidate" for the purpose of competing for selection as an officer candidate. Application for the Officer Candidate School by a volunteer officer candidate must be made not later than three months after induction and if he is rejected or not selected four months thereafter, the volunteer officer candidate may request a discharge which will invariably be granted if made within ten days after he is notified of his status.

An applicant for the Officer Candidate School must be a citizen of The United States or of the Philippine Islands, or a citizen of a co-belligerent or friendly country who otherwise possesses the same qualifications as a citizen of the United States.

In addition, the length of service required before becoming eligible for admission to candidate schools has been reduced to three months for all enlisted men, regardless of where assigned. Heretofore, regulations have required a minimum of four months' basic training for men from replacement training centers and six months for men from other units. In very rare cases the length of service requirement of three months may be waived at the discretion of the selecting commander, if the experience, education, or prior service of the applicant so warrants.

The course at all Officer Candidate Schools is for a period of three months. It takes at least three months to teach an individual the basic subjects every soldier must know, regardless of his arm or service, and at least three months to then teach the same individual the fundamental duties of a commissioned officer. This period also affords a reasonable time in which to determine whether or not the soldier possesses the characteristics for leadership in battle.

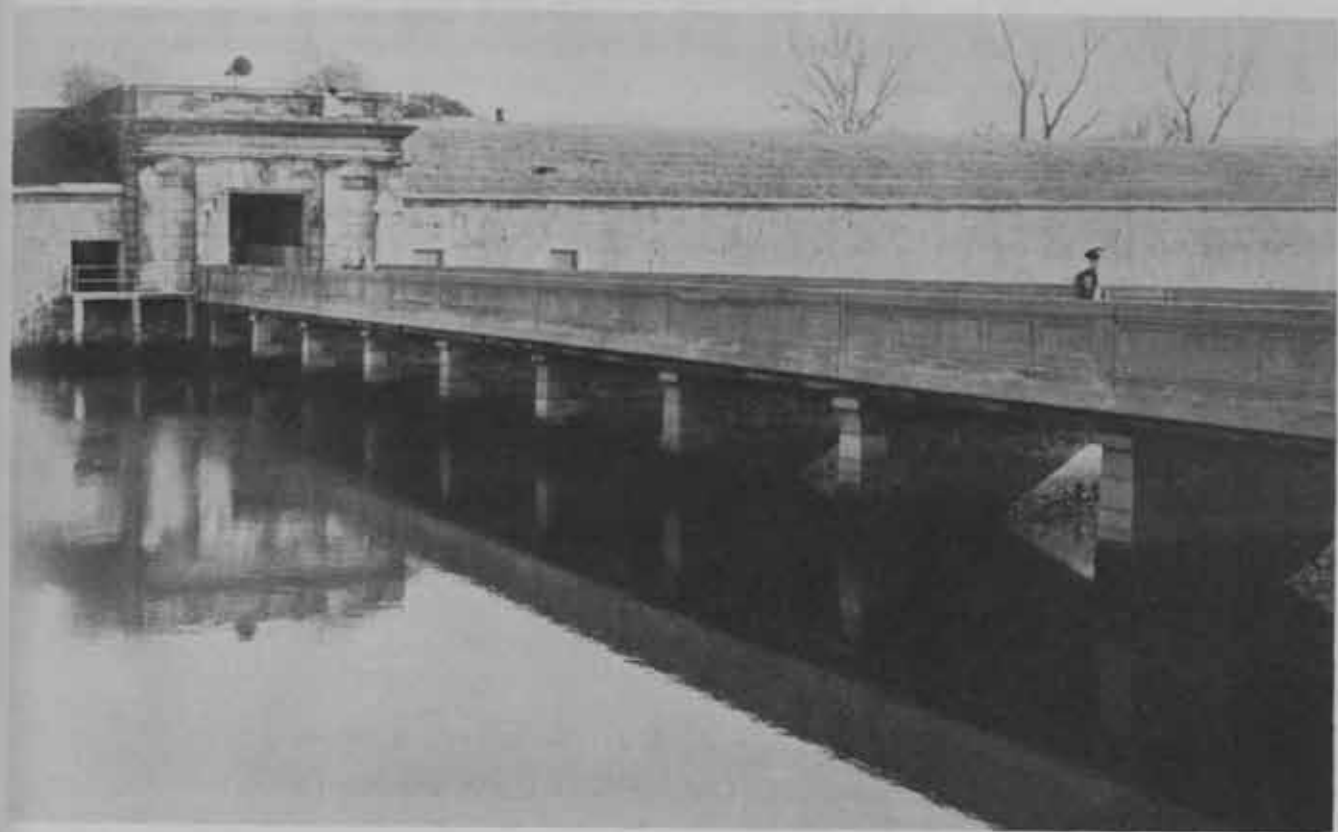
A soldier will be eligible for selection to an Officer Candidate School throughout his enlistment. The three months' period of service is a minimum established to meet the requirements of the present emergency. Under this procedure, those whose development is slow or whose qualifications are not immediately recognized will be afforded a continuing opportunity to qualify for attendance at the School.

Candidates who successfully complete the Officer Candidate School courses will be commissioned as second lieutenants in the Army of the United States. Exceptionally qualified graduates, who are over age for duty with troops as second lieutenants, will be given further advanced training, and, upon demonstration of proper ability, will be promoted to higher grades more in keeping with their ages.

The Officer Candidate Schools in all branches of the Army are in process of being greatly expanded to accommodate the large number of candidates which the new regulations will produce. All men with necessary qualifications are urged to take advantage of this opportunity to become leaders in the new Army. These qualifications are listed in W.D. Circular No. 126, 1942. Enlisted men, now serving, should apply for admission through their battery or unit commanders.

The principal requirements, stressed above all others for admission to the Coast Artillery Officer Candidate School are outstanding qualities of leadership and a knowledge of mathematics. The latter includes simple arithmetic, algebra, plane and solid geometry, and plane trigonometry with an understanding of logarithms. Thorough facility on the part of the Coast Artillery candidate in the use of these mathematical subjects is essential to successful completion of other parts of the course after the twenty-eight hour review in mathematics is completed, particularly in "Orientation" and "Gunnery" which is the backbone of the course.

The required mathematics except for a table of trigo-



The main gate at Fort Monroe.

nometric functions is covered in the textbook used in the course *Mathematics for the Coast Artillery Officer*, Revised Edition.¹ Post or regimental commanders who conduct scheduled courses for officer candidates may obtain the required number of copies of this text, without cost, upon official request, submitted to the Secretary, Coast Artillery School, Fort Monroe, Virginia. This should be accompanied by a statement that the copies are to be used in a scheduled preparatory course under their supervision. Although the educational background of a candidate, including a degree, is an important element in determining his selection, it is not the deciding factor. Equivalent training and experience in civil life are equally acceptable to the Army.

All applicants must have received a rating of 110 or better in the Army General Classification Test to be eligible for admission to Candidate Schools. Provision is made that if any soldier fails to attain this grade in his initial test for reasons beyond his control, permission may be granted to take the test a second time.

Potential candidates should know that the Officer Candidate School at Fort Monroe has as its prime purpose the graduation of as many trained men as possible and not the idea of how many candidates it can keep from securing commissions.

The Officer Candidate School, in order to judge their leadership qualifications, rotates and constantly observes the candidates during the course in positions of

command responsibility, such as squad, section, platoon, and battery commander at drill, in charge of calisthenics, and in charge of quarters.

Experience of the School has clearly demonstrated that candidates who have exercised command or leadership responsibilities as noncommissioned officers in the conduct of drill, or as leaders in athletic teams in or out of the Army, demonstrate much more quickly during the School course qualities of leadership and command ability than do better educated men who have done entirely individual clerical work in civil life or in the Army.

Some of the principal subjects studied are:

Review of Mathematics. Elementary algebra, plane trigonometry, and logarithms are reviewed. Work sheets and written reviews are appropriately employed. Note that this course is designed as a review or refresher course, and presupposes a working knowledge of the subject on the part of each candidate.

Military Courtesy, Discipline, and Customs of the Service. Special emphasis is placed on the duties and responsibilities of the officer in regard to this phase of military life. Personal courtesies and courtesy to the American Flag, specific disciplinary regulations, customs attained through usage, and hints as to attainment and maintenance of discipline are all included in the scope of the course.

Motor Transportation. The following subjects are included: the fundamental principles of the operation, care, and maintenance of military motor vehicles; the

¹This mathematics textbook is available at twenty-five cents per copy from the JOURNAL.

organization and operation of motor transport pools and shops; motor vehicle lubrication, inspections, records and reports, motor marches, and Diesel-engine tractors, heavy MI.

Map Reading. The importance of the use of maps and aerial photographs is stressed. Lectures and practical work are employed in presenting the following topics: conventional signs, direction, scales, elevation, visibility, comparison of maps and photographs.

Infantry Drill. Infantry drill is reviewed including manual of arms, school of the soldier, and drill of the squad, platoon, and battery. The duties of officers at such ceremonies as parades, reviews, and formal and informal guard mounts are reviewed.

Administration. Battery administration is analyzed in an effort to acquaint the candidate with all routine phases of administration of the unit. A thorough study is made of morning reports, sick reports, supply records, correspondence, and battery fund. The functions of the personnel sections of higher units are given.

Mess Management. Because candidates have been found to have very little experience and knowledge of this subject, all phases of mess management are considered, including nutrition, menus, kitchen management, mess accounting for both garrison and field rations, procurement and storage, and sanitation. Also included is instruction in inspection of mess and mess equipment.

Tactics. Candidates are instructed in the employment of seacoast artillery within a harbor defense, and in the use of harbor defense searchlights. The problems of commanders and their staffs are studied, including commands and field orders. As an essential phase, identification of warships is stressed by means of silhouettes and markings. The use and tactical employment of mines and obstacles, and the employment of seacoast artillery in beach defense are covered.

Organization and Weapons of Seacoast Artillery. The weapons of seacoast artillery, the administrative and tactical organization of both harbor defense and mobile seacoast artillery and the duties of staff officers

are discussed. Comment is made upon pertinent T/O's and the principles of tactical organization.

Intelligence. Basic combat intelligence and combat intelligence for seacoast artillery units are considered. This is followed by a problem in evaluation and interpretation of information from entries in an S-2 Journal. As a corollary to the above subject, a conference in methods of instruction for combat intelligence, including explanation and application of various methods, subjects, hours, scheduling, and planning is held. This is followed by a problem in planning the combat intelligence instruction for a regiment.

Camouflage. The necessity for camouflage for installations is stressed. Camouflage technique is reviewed generally, including methods and materials for different types of positions. Also methods of attaining and maintaining camouflage discipline.

Orientation. Each candidate is acquainted with the general orientation problems he is likely to encounter in Coast Artillery work. Instruction is given in use of the transit, supplemented by practical work in running a transit traverse and by orienting on polaris and the sun. Also included is the use of grid and geographic coordinates, bearings, and azimuths.

Seacoast Artillery and Firing. Comprising the principal part of the Officer Candidate School curriculum, the artillery course is divided into academic study and practical firing. The academic part of the course is designed to cover all the various instruments and methods used by the seacoast artillery, including theory of construction. This part of the course is comprehensive and considered difficult. Practical work is combined with theory.

Supervised Study. During supervised study the instructors assist candidates in difficulties encountered in study assignments.

So, with a day filled from reveille at 0615 to the walk back to the barracks from the end of study hall at 2030, the potential officer is glad to hit the hay with a feeling that the day has been well spent.



No, your job need not have glamour. You don't need a uniform to be a patriot. You need not stand where the shells are dropping. You can be a superb patriot in your own kitchen.—LIEUTENANT GENERAL BREHON B. SOMERVELL.

Lubrication of Coast Artillery Materiel

(A Bibliography)

By Ruth Harry*

This bibliography on the important subject of lubrication assemblies in compact form the most complete list of references available. Similar bibliographies on other Coast Artillery topics will be prepared upon request to the Coast Artillery School, Fort Monroe, Virginia.

3-INCH GUNS

- FM 4-90 Seacoast Artillery. Service of the piece. 3-inch rapid-fire gun (Barbette carriage). 1940. pp. 13-17.
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FM 4-75 Seacoast Artillery. Service of the piece. 6-inch gun on Barbette carriage. 1940. pp. 14-17.
Ordnance Field Service. Bulletin No. 6-E-21. Lubrication on instructions for carriage, disappearing, 6", M1903 gun, 6", M1903 (SNL E-4). October 1, 1941.
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Ordnance Field Service. Bulletin No. 6-D-24. Lubrication instructions for carriage, gun, 155mm, M1 gun, 155mm, M1 and M1A1. October 1, 1941.

- War Department Lubrication Guide, No. 10. Carriage, gun, 155mm, M1 gun, 155mm, M1 and M1A1. Revised, April 15, 1942.

8-INCH GUNS

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FM 4-50 Seacoast Artillery. Service of the piece. 8-inch gun, railway artillery. 1940. pp. 17-24.
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Ordnance Field Service. Bulletin No. 6-E-34. Lubrication instruction for mount, 8", railway, M1A1 gun, 8", mark VI, mod. 3A2 (SNL E-6). October 1, 1941.
War Department Lubrication Guide, No. 16. Carriage, Barbette, 8", M1918 (railway) gun, 8", M1888 (railway). August 13, 1941.
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10-INCH GUNS

- FM 4-65 Seacoast Artillery. Service of the piece. 10-inch gun (disappearing carriage). 1940. pp. 18-23.

12-INCH GUNS

- FM 4-45 Seacoast Artillery. Service of the piece. 12-inch gun, railway mount, M1918, railway artillery. 1940. pp. 20-26.
FM 4-60 Seacoast Artillery. Service of the piece. 12-inch gun (Barbette carriage). 1940. pp. 18-22.
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*Assistant Librarian, Coast Artillery School Library.

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16-INCH GUNS

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{TM 9-850 (1941)

{U. S. Army, Ordnance Pamphlet, No. 1869 (1917).
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The epidemic of inhuman warfare from which the world is now suffering is destined to be of long duration, involving for us of America deprivation and sacrifice beyond anything in our past experience, but we face a choice between the destruction of our civilization by barbarians, and the sacrifice of our treasure and blood necessary to destroy these war-mad savages.

The preservation of our American way of living, produced by the toil and suffering of our fathers, is dependent upon a complete defeat of the Axis, and any prospect of peace for our children demands the elimination of those who are responsible for the present world agony and who are leading their own people to their undoing.

We must arrange to have in the future no "Pearl Harbor" assassinations. — ADMIRAL WILLIAM D. LEAHY.

Ballistic Correction Rule

By Captain Donald W. Holmberg, Coast Artillery Corps

Having received many meteorological messages during blackout alerts, and having done a great amount of wishful thinking about computing the messages rapidly, and having trained an endless chain of enlisted men in the method of computation and application of the meteorological message only to watch them disappear in a cloud of cadres or in some other manner, the writer applied for a three-day pass and concocted the device described herein.

The Ballistic Correction Rule affords an easy, rapid, and accurate method of computing ballistic corrections. It shows at a glance all corrections to be applied for each altitude. While it is considered at the present time that ballistic corrections for the most likely altitude of hostile attack should be applied to the director, it is the opinion of the writer that a good director crew should be able to apply the proper corrections upon the first determination of the target's altitude. The rule operator must have approximately the same qualifications as the "Drift Doctor" described by Captain K. C. Smith in a recent issue of *THE COAST ARTILLERY JOURNAL*. (Thank you, Captain Smith, for a decidedly larger number of hits in a recent target practice.)

The rule is easily constructed, materials needed being one celluloid disc 11.8 inches in diameter, and one disc 13.2 inches in diameter. A special celluloid ink, slightly diluted with acetone, should be used. This ink is obtainable at most large stationery stores, and will give a permanent and weatherproof job.

The rule is based on factors approved by the Coast

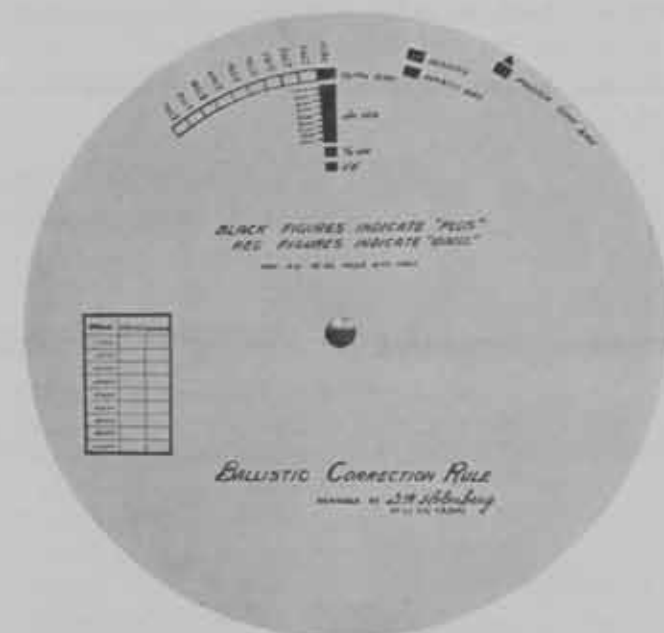
Artillery School for use in computing ballistic corrections. The error involved at no time exceeds one probable error in time of flight. The present model is adaptable for use with only one type of ammunition. While the error contained in the rule is small, it is designed for use in the field rather than as a substitute for firing table differential effects, which would be used for extreme accuracy of trial fire.

It has been suggested that the rule be based on firing tables rather than on constant factors, and the writer is at present working on a simplified rule of such design.

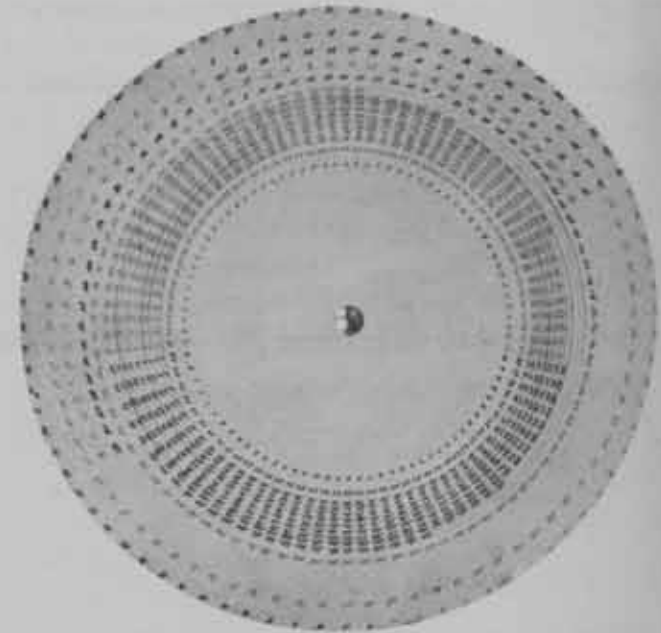
The rear disc of the rule consists of concentric scales, the outer scale representing powder temperature. The second scale indicates the resulting $\Delta M. V.$ due to a powder temperature which is not normal. The third scale represents density in per cent of artillery normal. The fourth scale indicates the resulting $\Delta M. V.$ due to prevailing density. The fifth scale represents the total $\Delta M. V.$ to be corrected. The sixth scale consists of nine concentric scales which indicate altitude corrections for each zone from three to ten. The seventh scale indicates % dH and is not needed, but is shown as additional information. The eighth scale indicates the $d\phi$ necessary for the total $\Delta M. V.$

CONSTRUCTION

The front disc has an index on its perimeter for positioning the disc according to powder temperature. Directly beneath the index, a window is cut and marked *Powder Temp. $\Delta M. V.$* The figures of the



Front Disc.



Rear disc.

second scale will appear in this window, and are placed directly beneath figures of the outer scale. Two windows are cut to the left and below the *Powder Temp. Δ M.V.* window so that the figures on the *Density* scale and the *Density Δ M.V.* scale will appear in them. To the left and below the *Density Δ M.V.* window, another window is cut, so that the figures of the *Total Δ M.V.* scale will appear within it. Directly below are cut three more windows in which will appear *dH yards*, *%dH*, and *d ϕ* .

On the face of the disc, vertical and horizontal lines are drawn to form three columns of nine spaces. The left column is numbered to indicate zones from three to ten inclusive. Opposite the zones are written the wind components from current meteorological messages.

The instructions given herein apply to H. E. Shell, M42, Fuze M43. Figures having plus values are black. Figures having negative values are red.

Outer Scale: Graduated in steps of two from zero to a plus 110, and from zero to a minus 48. These figures represent powder temperature in degrees F.

Second Scale: Graduated in steps of three from zero to a plus 60, and from zero to a minus 177. The zero of this scale is placed directly under the zero of the plus 70 of the outer scale.

Third Scale: Graduated normally from zero to a plus 20. From zero to the left or minus direction, it is numbered 99, 98, 97, etc., down to 85.

Fourth Scale: Graduated in steps of 14 from zero to a plus 280, and from zero to a minus 280. The zero of this scale is placed directly under the zero of the *Density* scale. (Third scale.) The plus figures of the fourth scale are placed under the minus figures of the third scale. Plus to the left, minus to the right.

Fifth Scale: Graduated in steps of six from zero to a plus 204, and from zero to a minus 342. Plus figures to the right of zero.

Sixth Scale: The figures of this scale were computed by multiplying the factor .03 times the figures of the fifth scale to obtain %dH. Multiply %dH times altitude to obtain dH in yards. Consider zones three to ten inclusive. The correction for a plus 100 f/s M.V. should be placed under the zero of the fifth scale. By offsetting in this manner, the difference between cam and developed M.V. is automatically taken into consideration in computations with the rule. If your battery does not develop 2800 f/s M.V., displace the *Total Δ M.V.* window or shift the *Total Δ M.V.* scale the necessary amount.

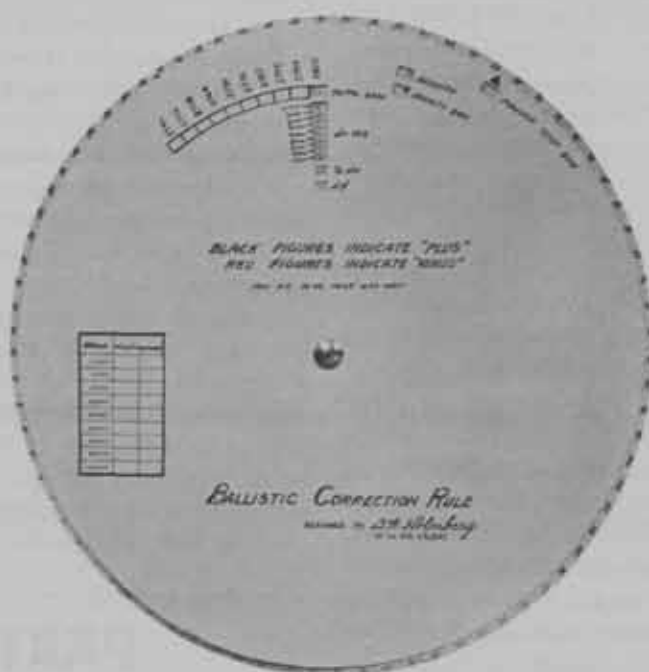
Seventh Scale: Contains %dH to the nearest tenth of one per cent.

Eighth Scale: Contains proper d ϕ to the nearest mil to allow further weighting by trial fire corrections.

Reference to the accompanying photographs will be of help in construction of the rule.

As an example of the use of the rule, assume that the following ballistic conditions exist: Powder temperature, 60 degrees F., and density, 103%. Guns develop 2800 f/s M.V.

Place the index of the front disc on 60, and in the window marked *Powder Temp. Δ M.V.* read a minus 15. Keeping this figure in mind, place the window marked *Density* on 103, and in window marked *Density Δ M.V.* read a minus 42. The total Δ M.V. is a minus 57. Place window marked *Total Δ M.V.* over the red or minus 57, or the closest figure thereto, and in windows below read dH in yards for desired altitude, a %dH of a minus 1.4; and a d ϕ of a minus 2 mils.



The complete rule.

War Planes of the Axis^{*}

By David C. Cooke

THE ITALIAN AIR FORCE

HISTORY AND BACKGROUND

Some observers have estimated that the total air strength of the *Regia Aeronautica* at the beginning of the War was approximately 4,500 machines and still others have put the figure as high as 10,000. It is apparent from events that have occurred since that time, however, that the Italians had no more than possibly 3,500 aircraft, of which only about 900 to 1,000 were first-line combat types.

But even though the Italian airpower proved under the test of action to be almost non-existent—or ineffective, in any event—the threat of that airpower in 1935 won for *Signor* Mussolini the first victory over the heretofore unchallenged British navy when the English tried to frighten *Il Duce* out of his Ethiopian policy with the greatest concentration of sea power since the first World War. In reference to this international chess game, Major General James E. Fechet in 1938 wrote the following:

"Italy began to move into Ethiopia. England disappeared. First she threatened, then she started the parade of her fleet into the Mediterranean, an old trick which had worked so well so often. The mistress of the seas had for generations a magic wand which she could wave at any peace table. She could arrange a parade of her proud fleet past the window where the diplomats sat at council at the psychological moment and she could be sure that things would be decided her way.

"So, when Mussolini proved recalcitrant, England decided to give him the old medicine: she steamed up with the water wagons and rowed them down past Gibraltar on a leisurely cruise toward Malta and the eastern end of the Mediterranean, with serene confidence that soon all would be well, truant Italy would be properly impressed.

"But Mussolini had a counter trick. He paraded too. He ordered out his submarines, light torpedo sleds, and bombing planes to pass in review. What was the result of these competing parades on the same street on the same afternoon?

"England decided instantly that the cruising was much better in the western end of the Mediterranean. The water seemed much smoother up Alexandria way.

"Try this experiment. Take the range of an Italian bombing plane as the length of a piece of string; put one end of this string down on a map at a point indicating the westernmost Italian airdrome; with that string as a

radius, strike off an arc across the Mediterranean. Now you will know where the British fleet went—just outside that circle."

But why were the British so dreadfully defeated in this bloodless battle? Why didn't they steam right up the Mediterranean and blast the Italian forces to bits? The answer is, largely, airpower.

The English, apparently, had not correctly estimated the importance of the Italian Air Force. Many British officers still thought of war in terms of infantry divisions, tanks, machine guns, and sea power. But then, suddenly, the realization dawned upon them that there was still another aspect to be considered—airpower. And that threat of \$40,000 worth of airplane against \$60,000,000 worth of surface vessel sent the English fleet scurrying to harbor for protection.

When the British made known their plan to bluff the Italians into submission, it is reported that Mussolini ordered his Air Force chiefs to call for seventy volunteers to pilot an equal number of bombing planes, each to be loaded to capacity with high explosives. The Italian Air Force commanders assigned each of the seventy chosen pilots—700 are said to have volunteered—incidentally—to a particular English battle vessel. Each flyer was to stand his bomber on its nose, dive from 25,000 feet, and crash squarely down the smoke-stack of a British battleship. This group later became known as the Desperata Squadron and it is still in existence.

The true story of the Ethiopian campaign was never actually told outside of the council rooms of the Italian Air Ministry, but it has been learned that there was plenty wrong with the sky service as a military organization. Although it was adequate to bomb helpless tribesmen and run supplies across Ethiopia, this experience did not prove that the same machines and men could stand up against air fighters with equal training and equipment.

It was in Spain, not Ethiopia, that the Italian Air Force learned its real lesson. The fighter planes did not prove satisfactory; the bombers, on the other hand, were splendid, but they did not have *real* bomb sights. What was more, the Italian Air Service was let down by its engines, although the planes themselves were excellent and the training the crews received was as good as that offered elsewhere. But because of this

PART TWO

^{*}From *War Planes of the Axis*, by David C. Cooke. Reproduced by permission of Robert M. McBride and Company.



Italian Piaggio 108, four-motored, long-range bomber.

early power plant difficulty, today many of the newer Italian aircraft are fitted with engines of foreign design.

A study of the Italian Air Force discloses that it was not designed for home defense as much as territorial expansion. And because the Alps in the north form a natural barrier against invasion by land there were in service virtually as many seaplanes and flying boats as landplanes.

The general structure of the Italian Air Force is interesting. The elementary tactical unit is the squadron. Two or more squadrons, depending upon their location and duties, make up a Wing. There are two or more Wings to a Group and two or more Groups to an Aerial Brigade. Next come the Aerial Divisions, which are composed of two Brigades, and, finally, the Air Fleet, which is composed of two or more Aerial Divisions.

The squadrons of the Italian Air Service are classified as follows: *Stormi da Caccia*—Pursuit and Fighting; *Stormi da Ricognizione*—Reconnaissance; *Stormi da Bombardamento Diurno*—Day Bombing; *Stormi da Bombardamento Notturo*—Night Bombing.

The training of Italian airmen follows a somewhat different pattern from that given in this country. From the Secondary Civil Schools the Cadet College recruits suitable candidates who, after three years of training, are raised into the ranks of flying sub-lieutenants. They are then pilots, but they have to continue their work for two more years before they are rewarded with the rank of observer—which indicates that the Italians consider a trained aerial observer more valuable than a pilot. This is not new, for the same order of rank was recognized in several European air services as far back as 1916, when observers were actually in charge of machines and pilots had to follow their orders. In the German two-seater squadrons during the first World War, it was not unusual for the pilot to be a sergeant and the observer anything up to the equivalent of captain. The sergeant-pilot is still a feature of the modern Royal Air Force,¹ and he works or flies under the orders of a commissioned officer.

The Italians have specialty schools where higher-ranking observers and fighter pilots are trained. Specialized bombing is also a feature of these advanced training centers where both landplanes and seaplanes are used.

A flying captain, evidently the equivalent of a wing commander, would take a special six-month course at the *Corso Superiore presso la R. Accademia Aeronautica Caserta*. The training center of mechanics, riggers, gunners, photographers, and wireless operators is known as the *Scuola Specializzata dell' Arma Aeronautica*, or the Aircraft Apprentices School.

To compute the air strength of present-day Italy requires more than simple addition, for there are other important factors to consider. In the first place it cannot be ignored that Mussolini is a great personal power in Italian aeronautics. He is a flying man himself—a real flying man who can personally take the controls of a modern bomber and fly it with more than average ability. The Italian air arm, too, is a unified and independent service and is entirely free of the Army or Navy.

Italy has no aircraft carriers of the flight-deck type—which is probably the main reason for England's great successes against the Italian fleet—but they do have the *Giuseppe Miraglia*, a seaplane carrier which accommodates about twenty aircraft. Nineteen cruisers are fitted with catapults and ten battleships are so equipped, carrying about four aircraft apiece. In addition, the submarine *Ettore Fieramosca*, a vessel of 1,788 tons, carries a folding-wing seaplane in a hangar aft of the conning tower.

At least half of the *Regia Aeronautica* is made up of seaplanes. It is estimated that about a third of the landplanes are fighters, with the balance of combat types being bombers. In all of Italy there are only twenty-nine airfields open to civilian planes, and fifteen of these are of a semi-military nature.

As to the number of pilots available for military service, estimates range from 10,000 to 20,000, with the former generally considered more accurate. At least 75 per cent of all Italian military flyers are said to be on active duty.

¹Our Army Air Forces are now training sergeant-pilots.

THE ITALIAN AIR FORCE

FIGHTERS

To say the least, fighting planes of the *Regia Aeronautica* have made very poor showings so far in this war; observers admit, however, that the Italian machines are "clean and good." From this, then, it must be assumed that Italy's total failure, as far as aerial displays of power are concerned, must lie in some other field.

Newspaper ballyhoo to the contrary, it has been definitely established that the Italian morale as a whole—at least, as far as pilots and aircrews are concerned—is not broken, and it has been explained previously that their training is not faulty. But by delving deeper we find that, fundamentally, Italy's poor showing against Allied fighters has been caused by three factors: inadequate fire-power, short range, and lack of bases.

Several years ago Italy's Air Force was one of the best—if not the best—air force in Europe, or, for that matter, in the world. But, unfortunately—or fortunately, depending upon the light in which the topic is discussed—Italy allowed her air might to deteriorate and took no effective steps to remedy the situation until Spring or possibly Summer of 1941. Certainly, it cannot be argued effectively that aeronautical design in Italy has not been progressive to a great degree. For example, the *Caproni-Campini C.C.-2* jet-propulsion plane of late 1941 is one of the really true advancements that has been made in aviation since about 1932.

The C.C.-2 is entirely different from orthodox aircraft in that it uses no propeller. It is a conventional plane from external appearance, being a low-winged job of all metal construction. Simply, the jet-propulsion system works as follows: Air enters the circular intake in the nose and passes through an expansion chamber where its velocity is reduced and its pressure increased before it enters the motor driven compressor. This compressor heats the air and propels it backward into a convergent tunnel, and the air goes out of the compressor with increased velocity and temperature. The exhaust helps in heating it down the tunnel, and the air is finally ejected from the tail at normal atmospheric pressure with increased velocity and temperature. The

kinetic energy thus induced gives an extremely powerful thrust. The throttle control is by a cone which enlarges or reduces the area of the outlet.)

Since Italy at the beginning of the war was actually thinking of airpower in terms of pre-war days and since the Italian people in all probability believed they were getting into the battle at the tail-end and would not have to worry about the future, little or nothing was done to increase armament on her aircraft at the outset of hostilities. Thus, two guns remained standard equipment for single-seat fighters while the other warring nations were using as many as eight forward firing weapons. Again, because the Alps protected Italy proper from the north, the range of the average fighter was quite short, usually affording a radius of action of not more than 350 to 400 miles. A third disadvantage arose from the fact that Italy had always believed that there was more to fear from sea attack; thus, fighter squadrons were based in the south while many factories were located in the north. This, of course, left the maternity ward of the Air Force open to attack by English planes, with little or no opposition from Italian fighters or interceptors.

These faults, however, according to recent word, are being remedied, and it is quite possible that Italy, before this war has run its course, will make more than a fair showing of airpower.

Italy's aviation experimental work, as proved by the *Caproni-Campini C.C.-2*, at least parallels that being carried on in other countries, so it is logical to assume that fighter planes of greatly increased performance and fire-power are in the offing. Because of strict military secrecy, however, there is no information concerning these planes and the facts will probably not be forthcoming until Allied forces have eventually shot down the machines over friendly territory.

BOMBERS

Although the *Regia Aeronautica* has some very modern and formidable types of bombardment machines in service, the majority of Italian planes in that classification are obsolescent, to say the least. Italy formerly achieved the greatest bombing force in the world by



Scale model of Mitsubishi 97 long-range bomber.



Another view of the Mitsubishi 97

following the airpower principles of General Giulio Douhet, but that force was allowed to slip down the scale until the planes of which it was composed could hardly be called worthy of a first-line air force.

Although, as mentioned previously, more modern types have undoubtedly been developed since the beginning of the war, Italy still has before her a long, hard production struggle to re-equip her squadrons with modern machines.

FLYING BOATS AND SEAPLANES

Even though there are not a great many types of naval aircraft in the Italian Air Force, when compared with other Powers, these few models have been built in large numbers. Since Italy is practically surrounded by water and has no aircraft carriers on which to base landplanes, the tendency has been toward long-range flying boats and seaplanes for overwater reconnaissance and bombing missions. These planes are heavy load carriers and may be fitted with torpedoes for use against hostile surface craft.

MISCELLANEOUS TYPES

As is the case in other warring countries, all of Italy's commercial planes are subject to military duties in case of necessity. With the *Regia Aeronautica* these machines are used for reconnaissance, communications, training and troop carrying. By performing missions of military nature, in cooperation with the armed forces, they automatically free actual military machines from

these duties and make them available for combat purposes.

THE JAPANESE AIR FORCE

HISTORY AND BACKGROUND

Different tactics certainly could not have been expected of Japan at the outbreak of hostilities. The Japanese army is patterned directly on the German system and uses fundamentally the same methods, because it was in the first place organized and schooled by German officers. The Japanese are known to be exceptionally good at following, but they have always been notoriously short of leadership in military endeavors. So their offensive against the totally unprepared American and British forces was directly in keeping with the policies advocated by the senior Axis partner in their blitzkrieg tactics—even to striking on Sunday.

The relative smallness of the islands, the density of population, and the concentration of war factories within range of heavy bombers operating from Wake and Guam leave the nerve centers of the Mikado's military productive capacity open to attack. This is undoubtedly the main reason for Japan's early concentrated assaults upon Wake and Guam—to eliminate them as possible bases of operation for the U. S. Air Forces.

According to reliable information Japan has some sixteen army aviation regiments, of four squadrons each. This total of sixty-four squadrons is probably made up of one-third fighter and two-thirds bomber and bomber-

reconnaissance types. Eight army squadrons are located in the immediate vicinity of Tokyo, in addition to four navy squadrons equipped with seaplanes. These twelve squadrons probably constitute the largest concentration of military airpower that any country in the world has gathered around a capital city. Of course, the territory from Tokyo south to Kanya is the most important in the Empire, since it is the most densely populated and the most productive. In addition to the original sixty-four, other army squadrons, which are not used for combat duties, are located at Tokorozawa, Akeno, Shimoshizu, Inagemachi, Kumagi, Hamamatsu, and Murayamamura. The duties of these are, respectively, flight training, aerial fighting, tactics and reconnaissance, air defense, air pilotage, bombing and boys' training.

In the Army Air Force, the regiment is the highest tactical unit. It has its own flying fields, ground service, and training schools and consists of from two to five squadrons of about ten planes each.

An additional forty to fifty squadrons are under the command of the navy; some of these are land-based and some are stationed aboard aircraft carriers. The carriers in service at the beginning of the war were the *Kaga* (60 aircraft), *Akagi* (50 aircraft), *Soryu*, *Hiryu* and *Koryu* (each of which carries 28 aircraft), *Hosko* (26 aircraft), and *Ryujo* (24 aircraft). Also, Japan had six specialized seaplane carriers of about 10,000 tons each and fourteen battleships each of which carries two or three catapults and up to five or six seaplanes. All of these battleships have been modernized since 1929 or 1930 and can therefore be classed as almost new ships. Further, all but five of Japan's forty-three cruisers carry from one to two catapults.

Very little is known about the productive capacity of Japanese aircraft factories or the number of military machines of which their air force is composed, so any figures given are necessarily hypothetical. However, Alfred Downs on December 17, 1941, published a very interesting account of the Japanese Air Force in the *London Daily Mail*:

"Last year it was estimated that Japan had about 5,000 first-line airplanes and was turning out, annually, about 8,000 of all types. The goal for 1942 was 30,000 annually, but it is believed that Japan will never reach that figure because of shortage of materials, especially tools and aluminum. Japan's capacity this year is estimated by American engineers at 10,000 airplanes."

This 10,000 figure sounds very small beside the 60,000 aircraft which are to be built in the United States during 1942, and the 125,000 projected for 1943—but it must be remembered that mere quantity in an air force means absolutely nothing. It's just like trying to get on a bus with a ten-dollar bill when it is a rule that conductors are not obliged to change bills of larger denominations than two dollars. Not only can Japan use her aircraft in the Pacific area, she can also route replacements without undue difficulty. On both of these scores, the United Nations are sorely hampered. Therefore, Ja-

pan's 10,000 rate is better than any production rate, no matter how much higher, which cannot be put to effective use.

It seems that the weakest link in Japan's entire scheme of airpower is in the matter of personnel replacements. It is estimated that no more than 700 finished military pilots are commissioned by the army annually, after they have passed through an instruction period of two years. Further, it is said that Japan has a larger accident rate than any other air force in the world during the instruction period.

The reader will notice that several machines turned out by the same manufacturing company carry the same number designation. These aircraft are not the same type, nor are they even destined for similar missions, although their designations are identical. Aircraft are designated according to the Japanese calendar year when the model went into service. The Japanese calendar starts at 660 B.C., and thus a 1936 design would be known as type 96 from the Japanese year 2596. The last two digits of the calendar year, in other words, are used for designation purposes, although for some reason this rule is not followed consistently with all types.

Originally the air arm of the army was influenced strongly by the French and Germans, and that early influence is still plainly noticeable in Japanese plane construction. Only in recent years has the American influence made itself felt to any marked degree.

FIGHTERS

Whatever may be said regarding the quality of Japanese fighting machines, it must be admitted that they have accounted for themselves quite well against the United Nations. These successes were realized because the Japanese had the element of surprise, kept their supply lines open, and because they had planes in sufficient numbers at the right place at the right time. One second-line plane at the actual scene of operations is better than a thousand first-line speedsters away from the actual battle.

Japanese fighters very rarely mount more than two fixed and synchronized machine guns and are much, much slower than similar models in service in either Germany, Italy, England or America. Of the first-line types going into production, to replace many models used at the outbreak of the war, are included the Messerschmitt Me. 109, the Heinkel He. 113, and the Focke-Wulf 187. These ships, of course, compare favorably with contemporary craft in service with the United Nations.

BOMBERS

It is one of the basic precepts of the Japanese Air Force that the first task of the air arm is the annihilation of enemy air forces at their bases. To carry this out, the bombers usually undertake flights of no more than 250 miles past the front, accompanied by fighters with which they rendezvous along the route. Raids on enemy flying fields are usually made by groups of thirty to forty

planes and seldom by less than one full squadron. Preliminary reconnaissance flights over enemy air fields without simultaneous bombardment are almost never made by the Japanese. The bombers usually approach at a height of from 6,000 to 12,000 feet, in formations which depend on the number of machines participating. If there are interception measures, bombs are immediately dropped so that at least some damage may be inflicted without undue risk. If there is no active air defense, however, a run is made over the objective and test bombs are dropped. After that the flight is divided into groups of three or into squadrons, which attack separately their assigned objectives.

In a defensive fight the Japanese bombers keep a closed formation for mutual firing support. According to the German magazine, *Seemacht*, the Japanese flight precepts state: "Don't fire on the one whom you attack by chance but on the one against whom your comrade can't fire." So that all machine gunners can take part in the firing, the Japanese groups change their formations during the air battle, going above and below the pursuing planes to get away from their leader. Once in battle the Japanese squadron seldom attempts dodging maneuvers which might result in the separation of one plane from the rest and its certain destruction. In other words, the defense of the squadron is such that the expedition continues, with mutual fire support, while transfers can be made within the group. Because mutual firing support is considered to have little value in a

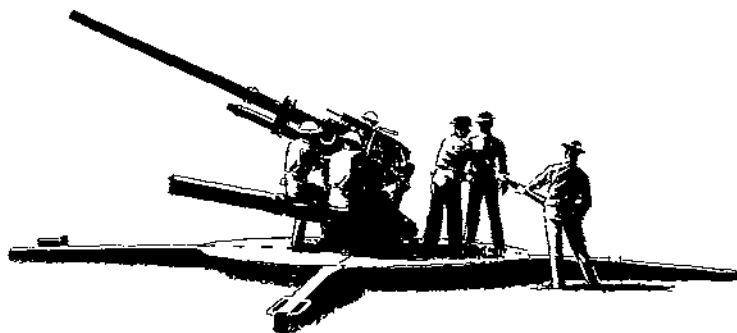
squadron group when the planes are too far apart, the Japanese prefer a short firing distance, from fifty to 200 yards, for all types of planes.

Although Japanese bombardment craft are obsolescent in comparison with those in service with other Powers, they were able to score so heavily against the United Nations in Far Eastern theater of war because there was relatively little effective opposition after initial knock-out blows had been dealt.

MISCELLANEOUS TYPES

Most of Japan's war planes are readily classified as fighters, bombers, or marine types, and the machines in those categories have been previously reviewed. The only other known Japanese military craft—transports, dive- and torpedo-bombers, trainers and reconnaissance planes—are included in the following summation.

Very little forward comment can be made regarding the ships since they are somewhat similar in general design to those in service with other countries. American dive- and torpedo-bombers are more modern, faster, and have longer cruising ranges, but the Jap counterparts have proved formidable. Likewise, Japanese trainers are slow and probably sluggish when compared to the Republic AT-12 or North American BT-14, but speed is not essential in training; the important thing is to turn out good pilots, and even Lieutenant General George Brett admits that the Japanese are good flyers.



JUNGLE WARFARE

Part Four (Condensed from Field Manual 31-20)

IN CAMP

During a movement through the jungle, the selection of a camp site is ordinarily dictated by necessity. But it is often possible to get information of suitable sites by sending small scouting parties ahead of the column. It is of prime necessity that the site selected be concealed from air observation. Clearings may turn into death traps if the camp is surprised and fired upon from the edge of the jungle. The ideal site is an isolated area of jungle vegetation with a clearing surrounding it and with water within it. But wherever the camp, it must be protected by the measures taken to provide security for any bivouac. Outposts must be placed and the surrounding terrain kept under observation wherever possible. Since observation is always limited in the jungle, the men of the security detachment must use their ears to supplement their eyes. Men should learn the normal night sounds of the jungle. Any cessation of these is warning that something is moving and disturbing the night life. The line of security detachments must be far enough out from the camp to preclude the possibility of its being overrun before the troops can be formed to defend it.

In the jungle, it takes very little work with machetes to build a ring of obstacles around a camp site that will greatly delay any attacker. It is fundamental that artificial obstacles must be covered by fire to be of any value. Machine guns are used to cover these artificial obstacles, and they are sited in before the troops go to sleep.

Since night movements are restricted largely to trails, roads, or streambeds, security detachments must be so disposed that every avenue of approach to the camp is covered. Supports and reserves should be located so that they can quickly reinforce threatened areas. This may require the subdivision of the reserve of the outpost into two or more components. Because of difficulties in signal communication and the frequent lack of lateral trails, visiting patrols are of great importance. All trails between the outpost line and the line of interior guards should be patrolled to keep small raiding parties from filtering through.

Our counter reconnaissance is helped by the very same things that make our own reconnaissance so difficult. It is so directed as to deny to enemy patrols the use of the regular avenues of approach and to force them into the jungle, where they may be tracked down and destroyed. This can be done by patrolling thoroughly all avenues of approach and by constructing obstacles which will tend to divert enemy patrols into certain channels. The construction of light obstacles

(cutting and intertwining or matted vines, brush, and similar growth) is easy in jungle areas and gives warning of parties passing through, or may cause them to detour and come into areas under surveillance. Obstructions built along the edge of the jungle and covered by small observation groups give the maximum coverage.

ATTACK AND DEFENSE

In jungle country those terrain factors which must be considered in all tactical operations—observation, fields of fire, concealment and cover, obstacles, and communications—are materially different. Observation, both air and ground, is so limited by the dense vegetation that neither the attacker nor the defender can be at all certain of effective fire support from field artillery guns or howitzers, or even from infantry mortars, except in savannas and open areas, and against villages or similar targets. Cover and concealment are equally available to both the attacker and defender in the jungle.

The jungle is a natural obstacle that makes it hard for an attacker to maintain centralized control of units larger than a battalion. Combat therefore becomes more and more, as a fight goes on, made up of independent actions by small units, whose course and conduct are largely determined by the missions initially assigned to them by higher commanders and the intentions of the top commander. Jungle combat demands the maximum in initiative and acceptance of responsibility. Jungle areas make it extremely difficult for the defender to deliver strongly supported and coordinated counterattacks.

Attack. For successful offensive action in the jungle, special measures must be taken to insure maintenance of direction, intercommunication between columns, cohesion, and protection of flanks. Rigid formations cannot be held. Easily controlled formations must be adopted and maintained as long as the situation permits and every precaution to avoid confusion and loss of control must be taken. Because of the difficulties of control, subordinate units must ordinarily be given limited objectives. This helps each higher commander to maintain and regain control during stages of the attack.

The success of a jungle attack often depends on a rapid and determined execution of a prearranged plan. Once an attack is launched, the commander has little opportunity to make major changes, which means that ordinarily he must initially put his reserves in an area from which their employment will be most effective. When lack of trails or routes makes the lateral move-

ment of reserves difficult, it is usually advisable to subdivide them and put them in several areas.

Enveloping jungle action by small units is more time-consuming, but it is also equally if not more effective than in more open terrain. Where there are trails or other avenues of approach for larger enveloping forces—particularly fast-moving units—a successful envelopment has an even greater psychological effect on the enemy than an envelopment executed in open country.

The formation for the advance must be carefully organized to insure maximum control and maintenance of direction. The formation adopted must prevent surprise by ambush, provide all-around security, and permit the rapid deployment of small groups.

A compact formation is essential to control. Line formations are virtually impossible to maintain. Men get lost or stray in the underbrush, and soon degenerate into leaderless groups incapable of concerted action. Squad column is ordinarily the best formation for the leading elements of an attack. The use of platoon column, or column of platoons, increases the difficulty of deployment and retards the development of the available fire power. However, platoon columns permit greater control and are often more desirable than squad columns until close to the enemy.

Reserves should follow assault units closely because leading elements moving forward against an enemy they cannot see are prone to exaggerate his strength. Close support is accordingly essential to confidence and success. Excessive distances make for poor control and may result in the absence of support at a time of crisis.

Patrols to the front and flank of each column are essential. These patrols must maintain visual and voice contact with the troops they are protecting, and where possible, with adjacent units.

Direction is maintained by compass bearing. Roads, trails, streams, and prominent landmarks are also means of orientation. Short halts to check direction, restore order, and establish communication and control can be made on predetermined well-defined areas or lines, such as trail junctions, crosstrails, or streams. If such ground features are not found in the area of advance, halts should be made on a time schedule.

Easily controlled formations should be maintained as long as the situation permits, which ordinarily means until first contact with the enemy. When hostile elements are encountered, our scouts and patrols try to overcome the advance detachments rapidly and with the least possible noise. When resistance is encountered which the scouts and patrols cannot handle, then the assault units deploy and seek to dislodge and destroy it both by frontal attack and maneuver.

Since combat in the jungle will ordinarily develop into numerous small independent actions, initiative and troop-leading ability in the lower leaders are of highest importance. Knowing the objective of the force as well as his own objective, and knowing the intention

of the higher leader, each lower leader must consider his unit a self-contained unit with a definite task to accomplish, without expecting direct help from adjacent units.

Troops must be particularly alert to find gassed areas and obstacles, and in avoiding these to keep clear of areas or zones covered by enemy fire.

Supports and reserves must cover the routes of advance to prevent the leading elements from being cut off. They reinforce the leading elements, envelop hostile flanks, and meet counterattacks. After the leading units have passed through an area reserves mop it up. Small groups may be sent into the enemy rear to destroy his communications and supply installations and ambush small parties and supply convoys. The men picked for this duty must have great physical endurance and must be able to think and act fast. Parachute troops may be effectively employed against hostile rear areas.

Defense. A defensive position should be so located as to intercept the enemy, or to threaten him so that he has to attempt to reduce the position before advancing further. Because of the obscurity of most jungle situations when forces are in contact, the defending force should begin its organization of a position while out of contact with the enemy. The position should be on high ground and behind natural obstacles, such as a river, a deep gorge, or an unusually thick area of jungle growth with few trails leading into the position. Good supply routes to the rear should be available, and lateral communication for supply and rapid movement of reserves is desirable. Secure flanks are of extreme importance, since the cover and concealment of the jungle may enable the attacker to launch a surprise attack in flank or rear of the position, or send forces around the flanks to harass our lines of communication and force a withdrawal.

The defensive area must always be closely knit in organization. This, of course, is to prevent the penetration of small hostile forces and the attack of our areas in flank and rear.

Initial dispositions should be such that all obstacles, and all trails or other approaches are covered by security groups to the front and flanks. The leader must assure himself that avenues of approach over which a hostile enveloping force might strike his flanks or rear are adequately guarded. All approaches between the defensive position and the security detachments are patrolled to prevent hostile elements from breaking through the jungle and cutting the security elements off.

The limited observation, the difficulty of exercising control, the inability initially to develop systematic flanking fires with automatic weapons, and the lack of close support of artillery and assistance from adjacent units—all these tend to make jungle fighting a battle of individuals and small groups. Only by decreasing the intervals between defense areas and the space between individuals in the same area can these disad-

vantages be minimized. This calls for a corresponding reduction in distances between front-line defense areas and the organized localities of the supporting echelons. The difficulty of moving large counterattacking forces readily through the jungle will ordinarily require that counterattacks be launched by units smaller in size than those used for this purpose in more open ground. As a result, local supports should be smaller and more numerous than for a defensive position organized on open terrain. Their exact location is dictated by the mission they have: (1) to support the forward defense areas by fire; (2) to make local counterattacks to eject an enemy who has entered the forward defense areas; or (3) to prevent further advance by the enemy.

The natural advantages the jungle offers a defender in preparing a position can be increased by clearing fields of fire and preparing obstacles and demolitions. This work should go on concurrently so that the position is prepared for defense at all times.

Dense growth limits the direction, range, and effectiveness of the defender's fire to such an extent that a protracted defense cannot be assured without clearing extensive fields of fire. Yet by taking full advantage of jungle conditions, restricted fields of fire can be made highly effective. In general, these are developed by first cutting lanes that can be enfiladed by automatic weapons. The lanes should be cut so as to flank the organized defensive areas, and some type of obstruction should be placed on the rear side of the lane to hold under fire any of the enemy who try to cross the clearing. In constructing fire lanes only the lower branches of trees are trimmed off and only the trees that directly interfere with the fire are felled and cleared away. When fire lanes are thus constructed, observation from the air is still kept difficult. By carefully planning the defenses and coordinating the obstacles with the fire lanes, the enemy can be held under fire either at the obstacle or when he tries to find a way around it.

The jungle itself provides much of the material necessary in the construction of obstacles. Against the movement of hostile foot troops a common form of jungle obstacle—and the one most easily built—is the

abatis (either of the dead or live form) reinforced by barbed wire. The difficulty of detecting a live abatis from the air makes it more desirable in many instances than a dead abatis. All jungle types of obstacles, if they are properly sited and constructed, have good concealment from air observation and their location may remain unknown to the attacker until he actually runs into them. Abatis should be sited so that their lengths can be covered by fire along the side toward the enemy. It is particularly important to see that an abatis doesn't give good cover and concealment to the enemy seeking to work into the position.

Streams may be formidable obstacles, particularly in the rainy season. Means for demolitions including the destruction of bridges and for quickly felling trees across trails should be available to any force which is defending or carrying out a withdrawal. Mines should also be available for use along trails or at river landings or water points. Booby traps and ambushes can often be used to good effect. It can seldom be expected that transport for barbed wire will be available.

Owing to the presence of large trees and dense undergrowth, and to the difficulty of maintaining direction, it must be expected that tank attacks in jungle-covered areas will be unusual. But when tank attacks are made the live abatis constructed from small trees and growth is but a slight hindrance. On the other hand, a dead abatis, properly constructed of large trees, may be a serious obstacle to tank movement. A dead abatis can be made more effective by cutting off the pliable ends of branches so that tanks strike the ends of strong limbs.

Every jungle soldier should carry a machete. The normal engineer tools provided for a force preparing a defensive position should be augmented by adding enough axes for at least twenty-five per cent of the command. A soldier trained in the use of machete and axe can with these two tools completely clear one hundred square yards of trail, or about two hundred square yards of fire lane, in five hours.

Security detachments should be placed along all possible approaches to a defensive position. Patrolling



An antitank gun that served on the Bataan Peninsula. Note the muzzle of the gun, well hidden by camouflage.

must be active along these approaches since jungle terrain aids the capture or destruction of isolated advance elements. After contact is made, these security detachments must vigorously fight any continued advance of the attacker, deny him the use of trails and other cleared routes of approach, and force him to cut his way through the jungle. Such continued opposition conceals our own exact location and strength and often decoys the attacker into fire-swept lanes and areas. The covering troops should also act to cut off and capture or destroy leading enemy elements that have infiltrated between them and the main position. Harassing detachments try to cut the enemy's lines of communication, destroy his rear installations, prevent the supply of leading units, and attack the flanks and rear of enemy forces. It is this kind of action that demoralizes any attacker, weakens his will to fight, and eventually enables us to attack him in turn.

RETROGRADE MOVEMENTS

If the mission and situation do not require a defense in place, retrograde movement—particularly against a much stronger and aggressive enemy—may initially be the most suitable type of action. Denying the enemy the use of roads, trails, and other approaches, and harrying his lines of communication as he tries to advance may so harass, discourage, and exhaust his men as to decrease materially their fighting ability and permit us to deliver a decisive counterblow. Smoke may be a valuable agent for use during retrograde movements, especially in open or partly open areas. It should be available in smokepots and grenades. Persistent chemicals may be advantageously employed, but their use must be carefully coordinated, especially with reference to the probable future action of our forces.

The cover and concealment provided by the jungle permit easy withdrawal by the units in contact with the enemy. Small groups familiar with the routes over which they are to move can readily disengage themselves. Such groups, placed on trails, can deny them to the enemy and force him to attack on a narrow front or cut trails around the delaying groups, thus gaining time for the withdrawal of our main body. Withdrawal by daylight in jungle areas has many of the concealment and cover advantages of night withdrawal in more open terrain and at the same time allows greater control. However, men and equipment moving on wide trails are easily observed from the air and are good targets.

In dense jungle areas delaying action must usually be fought on and near trails. In less dense areas, however, delaying action requires the occupation and defense of one or more delaying positions, since in these areas jungle fighting is more nearly like woods fighting and a defensive position is needed to insure effective delay. Successive delaying positions can be much closer together in jungles than in more open ground since the lack of observation generally prevents the use of

supporting artillery and mortars by the attacker. The flanks of these positions must be protected.

Small, determined groups can delay forces many times their size in jungle areas, but this kind of fighting is especially tiring. Consequently, units should be divided into groups so that they alternate in occupying the delaying positions while the enemy is kept constantly engaged.

In addition to their normal equipment, delaying groups should carry axes, landmines, and demolitions. Obstacles, to be of value, must be covered by fire. In order to cause the maximum delay to animal elements, bridges should be destroyed and trees and other obstacles placed across all trails and roads as far forward from the delaying position as time and the situation permit.

Landmines should be placed on both sides of obstacles, and in the obstacles themselves, to make their removal hazardous. Booby traps are especially useful here. At points where the jungle is thin and is not any great obstacle, persistent chemical mines may be used. Along the front of a delaying position as many obstacles should be constructed as time allows. These should be covered by fire and every effort should be made to place them so that the enemy will tend to filter into those areas where the delaying force can place the most fire upon him.

Because of the difficulties of supply and coordination, small, well-trained forces, if energetically led, are most suitable for carrying on delaying actions in the jungle. Supports should be available in rear of the leading elements along each trail. They may be used to extricate the leading elements from serious combat, to patrol the trails in order to prevent leading elements from being cut off and to replace them if they are captured.

SPECIAL OPERATIONS

In a jungle night attack, the number of columns into which the assaulting units are divided will ordinarily depend on the number of trails within the zone of action that lead toward the enemy position. To cut new trails beforehand is a slow, noisy process, likely to warn him of impending attack. Though small groups (such as a squad) of experienced men may be able to move quietly through the jungle, a large group is likely to betray itself. It may be possible for one or more small assault parties to approach directly, but it must be considered axiomatic for night movement in the jungle usually to be confined to trails, streambeds, or similar features, easily identified and followed.

Jungle conditions increase the difficulties of coordinating the time of attack of columns. If working on a time schedule, ample allowance must be made for delays, even if the columns move on trails. Landmarks and easily distinguished features will be scarce or entirely lacking. Because of the dense overhead growth pyrotechnic signals may not be seen by all column leaders, and dampness and heat make the pyrotechnics

themselves undependable. Preliminary reconnaissance and a careful analysis of the conditions under which the attack is to be launched help a leader to effect the proper attack coordination.

Even more than in open areas, night attacks in the jungle must be conducted on a small scale and with limited objectives. Where suitable approaches exist and mobile troops are available, a movement around the hostile position at night, followed by an early morning assault against hostile rear areas and installations, may be of much importance in demoralizing and defeating the enemy. Assault troops must depend largely on the bayonet, grenade, and machete.

Preliminary reconnaissance, the use of guides, the wearing of distinguishing marks, and maintenance of secrecy and quiet are fully as important as in night attacks in more open terrain. Keeping quiet is more difficult because troops moving over trails or through dense growths are more likely to make noises than troops moving on roads or through open fields. Since aviation and artillery will seldom be continuously present or in action, and since small-arms fire will alert the enemy, there can be no artificial ways of covering the noises made by marching troops. On the other hand, the assault is in no danger of visual observation, even on moonlit nights, for it will not cross open skylines, fields, or highways.

When supports are placed in rear to cover a possible withdrawal, they must be close to the avenues of withdrawal. They should preferably be located along the trails—facing the trail and not the enemy position—so that they can quickly strike with the bayonet those enemy elements trying to overtake the retiring assault units.

Since supply will often depend on convoys, and the jungle terrain is especially suited to ambush and surprise attack, a leader must give special thought to the protection of convoys. The convoy guard must be disposed so as to protect the convoy from capture, dispersal, or destruction. Mere delay will rarely be the enemy's object, and consequently our advance guard will seldom be the most important of the convoy security groups.

In the jungle, attacks on the head or tail of a convoy will ordinarily be made along or astride the trail over which the convoy is moving, and attacks on the flank will be made either along crosstrails or from the jungle itself. A flank ambush from the jungle, with detachments moving across the trail to intercept and halt the advance or retreat of the convoy, promises the enemy his best chance of surprise and success.

The ideal place for an ambush—and this is the ground where the utmost provision must be taken *against* ambush—is a length of trail running along the side of a steep slope. Here the ambushing force itself is above the trail, so that the defenders in turning to face the attack will have a precipice or a ravine in their rear, in which falling or stampeding pack animals will be killed

or injured and their loads lost. A valley ringed by commanding hills may be excellent for ambush in more open country, but is seldom suitable for ambush in the jungle because the dense growth allows no field of fire from the hilltops into the valley.

If the enemy is likely to use persistent chemicals, any low-ground trail, flanked by dense, damp, wind-breaking vegetation, is dangerous to a convoy and must be tested for chemicals by the advance guard. Where chemicals have been laid, the convoy must halt at the edge of the contaminated area until its extent and toxicity have been determined, and then if necessary a new trail must be cut around the area.

Here are some generalizations on convoy operations in the jungle:

(1) Advance and rear guards may be smaller than in open country and their distances less.

(2) The element that furnishes the flank guards must be stronger, in spite of the fact that patrols need not go so far to the flank as in open country. This is because movement through the jungle is slower and more tiring and unless there are other trails nearly parallel to the route of advance patrols must be relieved more often than in open country. Where side trails cross or diverge from the route of march, detachments must be sent out on these trails to stand guard until the convoy has cleared the junction. Good places for enemy ambush must be reconnoitered before the convoy reaches such defiles. The entire flank-guard support that furnishes the flanking patrols must march well up behind the advance guard so that the flank patrols can be sent out early enough to protect the flanks of the column that follows them. Such patrols should be sent out at intervals, and as the rear of the column comes abreast of each patrol, the patrol should join the rear of the column. If the flank-guard support becomes unduly depleted before camp is reached, it must be reinforced from the main body of the convoy guard during halts.

(3) Since attack on a convoy may come from any direction, the main body of the security detachment should usually march near the center of the convoy.

(4) In a long convoy small groups of automatic weapons should be located throughout the column. The fire which such a group can bring to bear at a moment's notice, at the point of first attack or ambush, may be decisive in beating off the enemy.

(5) Soldiers with experience in jungle attack and ambush of columns agree that the first few seconds of such an attack are generally decisive for one side or the other. When the first hostile shots strike into the column every man must throw himself to the ground, off the trail, and open rapid fire into the bush in the general direction of the enemy. Inexperienced men must be trained in such response until it becomes their involuntary reaction.

The general doctrines of attack and defense of river lines are discussed in FM 100-5. Jungle conditions



A foxhole at the edge of a clearing on the Bataan Peninsula. Note the Molotov Cocktail and the rifle ready to hand.

usually modify the tactical application of these doctrines as follows:

In an attack, the loss of time and surprise that go with cutting a number of trails toward the river bank may make it impracticable to cross on a wide front. You must rely on speed, fire power, and surprise. Feints at crossings can often be used to get small groups across secretly, and the confusion and uncertainty that small harassing groups can cause may be of decisive importance in assisting the main effort.

Bridging and ferrying material must be obtained on the ground, as even a light ponton train can seldom accompany jungle columns. On the other hand, these columns will seldom include either heavy guns or vehicles but only such supplies as can be ferried across the stream. As a result, jungle bridgeheads must be prepared to hold during the time necessary to cut timber and to build large rafts and bridges for the movement of additional troops, material, and supplies across the river.

Only the supporting fire of light weapons will ordinarily be available and these must be placed along the near bank itself in order to get observation. Weapons must usually be manhandled into position, and time for this must be allowed unless you depend solely on the surprise of a quick rush from the point where the trail route meets the stream.

When savannas or open areas are in rear of the river bank held by the enemy, our own parachute troops may be used to capture important points, block retreat or reinforcement, and to demoralize the enemy generally.

The bridgehead will ordinarily be much closer to the far bank than it would be in more open terrain.

In defensive warfare the main line of resistance is often located along a jungle riverbank. This is because the jungle itself with its usual lack of roads, trails, and other routes are deterrents to rapid counterattack or

movement of rearward reserves. It is therefore undesirable to let the enemy gain a foothold on our side of the river. Moreover, positions for supporting weapons can ordinarily be found only along the bank itself or close to it.

Suitable areas for crossings by the main attack forces will ordinarily be fewer in number than in more temperate climates and more thickly populated areas. However, the advantages of concealment and cover favor the crossing of small groups at any point.

The defender must provide protection for his flanks and rear. The ease with which small, highly trained groups can cross and operate stealthily in jungle areas to harass troops and damage or destroy installations requires that special measures be taken to protect against them.

SUPPLY

The importance of supply and the special conditions affecting it in jungle warfare will limit, and may determine, the extent of operations, rates of movement, and the strength of forces employed. The available trails or roads, waterways, density of growth, seasonal conditions, and ground features will all have a direct bearing on the several types of transportation and therefore upon the functioning of supply. A leader must anticipate his requirements well in advance of his actual needs. Careful planning is necessary to conserve transport facilities, and supplies of all classes must be closely supervised to avoid surplus and non-essential items.

Since the jungle ordinarily gives concealment against air observation and since convoys are more easily protected against ambush during daylight, leaders should whenever possible try to move their supplies during daylight hours.

Pack units, such as the quartermaster troop (pack), are a reliable means of transportation for supplies under practically any jungle conditions where trails exist or

can be cleared. With the Phillips' cargo packsaddle, loads of all needed kinds can be carried. A disadvantage is that forage must usually form a large part of its cargo.

Native pack animals and cargadores should be used when available, generally to supplement organic transportation. Uncertainty as to its limitations, and particularly as to its dependability, must be carefully considered. The use of native labor and animals will conserve combat efficiency.

Air transportation is not feasible in thick jungle but may be used when there are open clearings large enough to permit the dropping of supplies by parachute or the landing of supply planes. Where water areas are available, amphibian planes may be employed.

Waterborne transportation is the most economical and often the surest means of supply. Supplies transported by water are less liable to loss and damage; fragile food containers are safer, and the destruction caused by insects (particularly ants) is avoided. Boats, canoes, and rafts are to be used at every opportunity. Where practicable, dumps should be established along watercourses to save transportation by men and animals.

Motor transportation is generally not practicable except on roads, or in the dry season on wide trails and in areas where the jungle growth is light and free of intertwined vines and large trees.

Rations will necessarily consist mainly of non-perishable items: canned meats, vegetables, and fruit; bacon; dried vegetables and fruits; and candy. Rice and hominy can be substituted for potatoes. Fragile containers (paper and cloth) should be used as little as possible in order to avoid the loss and destruction due to insects, dampness, and breakage. To supply small reconnaissance or security detachments, small tin containers are handiest. For units which are to march in single file along narrow trails it may often be advisable before the march to distribute components of the ration so that meals can be prepared by squads or individuals. Field bread (with a hard crust) should be baked in individual loaves to facilitate handling and prevent damage when carried by pack. The supply of food in small (preferably individual) containers is very important where scarcity of water precludes sterilization of mess equipment. Our field ration C fully meets this requirement.

Ammunition supply will become progressively more difficult in moving situations, especially where there are no waterways. Like other supplies, ammunition must eventually be carried by hand before it is distributed—therefore, a breakdown to loads of forty to sixty pounds is necessary.

Water containers of five- or ten-gallon capacity will be needed to carry water when it is necessary to supply units at a distance from streams.

Local purchases are useful in inhabited areas to supplement the limited diet of a field ration. Fresh food, particularly fish, fruit, and vegetables, are often available. Supply and mess officers should be prepared to make such purchases for cash, provided sanitary inspections have been made by a medical officer.

Since clothing, shoes in particular, deteriorate more rapidly in tropical jungle areas than in more temperate or cold climates, special provision must be made for adequate supply of these articles. Companies and similar units should carry a small emergency supply of assorted sizes of shoes.

Engineer supplies such as cutting tools, barbed wire, and demolitions should be available on call. It may be necessary to place these supplies so far forward in the column that there will be risk of their loss, but the weight and extreme difficulty of transporting engineer materials make it imperative that they be moved by pack or water into or near areas where they are to be used.

EVACUATION

The usual equipment and property prescribed by tables of basic allowances for units concerned with evacuation are suitable for operations in the jungle. All motor transportation capable of being used for evacuation must be of the four-wheel-drive type, sturdily constructed, and with ample road clearance. Closed types of vehicles used in transportation of sick and wounded should be equipped with air-circulating fans.

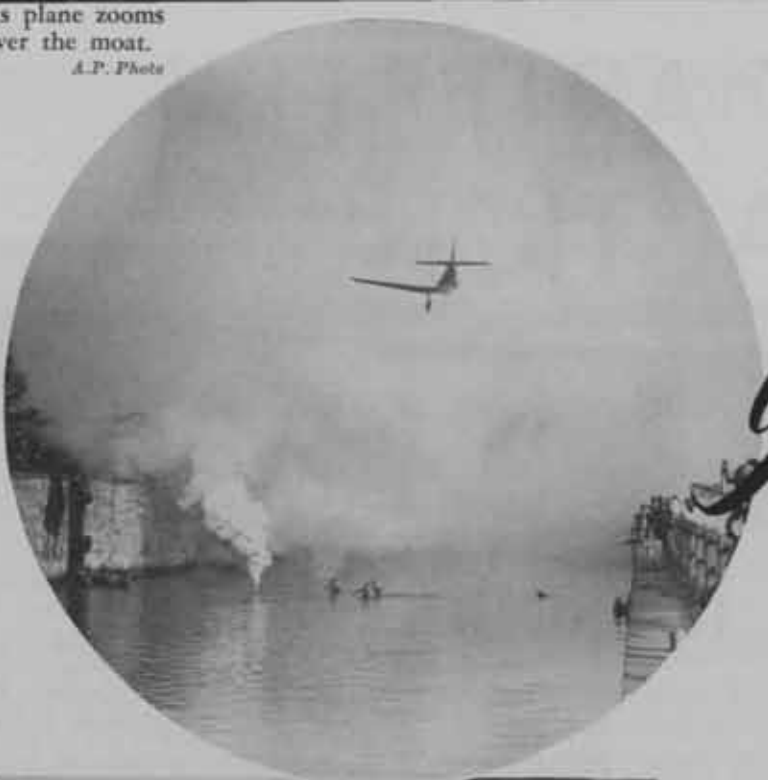
The collection of casualties is greatly hampered by jungle conditions. It is important that subordinate leaders know and pass on the location of aid stations, for the flow of wounded must be along trails and streambeds.

Litter bearers are confined to cleared trails. The use of wheeled equipment (wheel litters, wagons, motor ambulances) probably will be impracticable, if not impossible, and evacuation by litter bearers or by pack equipment over greater distances than in more open areas will be necessary. Some casualties not able to walk can ride mules; others must be evacuated on mule litters. Boats, rafts, and ambulance barges are used when practicable. Natives can be advantageously employed in the operation of this type of transportation. A sitting patient can be carried pick-a-back in a sling for great distances by native porters. Where open terrain or open water permits, airplanes and amphibian planes provide an excellent and rapid means of evacuation.

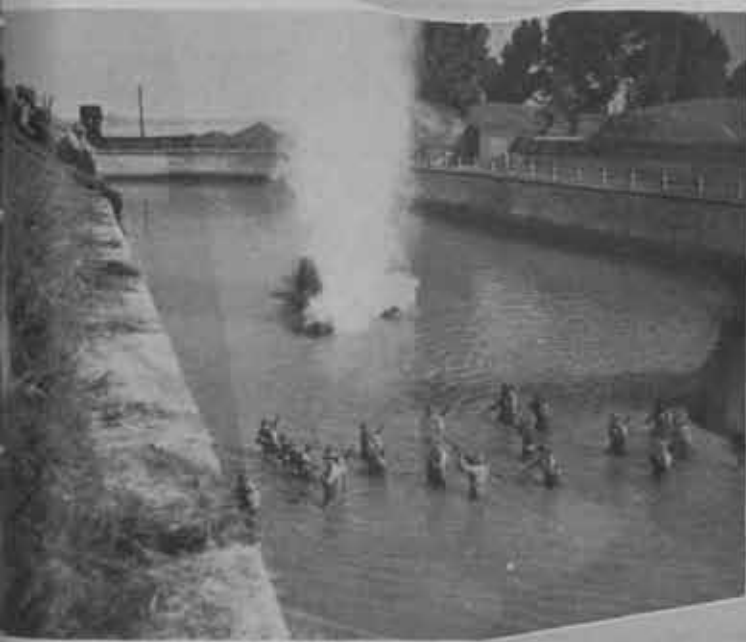
No one method of evacuation will do. It is rather by a combination of means available that the collection and transportation of the sick and wounded can be accomplished.



An Axis plane zooms
low over the moat.
A.P. Photo



AXIS TROOPS *Invade* FORT MONROE



↑ The first wave of invaders wades through the shallow waters.
A.P. Photo



↑ The walls scaled troops head for and signal stat
A.

→ American troops, bombed and gassed, rush to meet the Axis invaders.
Arme Photo



Realistic Training Exercises at Coast Artillery Post

COAST ARTILLERY IN ACTION



AA In Action

NAVY DEPARTMENT COMMUNIQUE No. 98

Aleutians

1. In early June, Japanese naval forces made a two-pronged thrust at our western-most possessions, Midway and the Aleutian chain. The presence in each attacking force of troop transports indicated that these attacks were aimed at capture and occupation. The thrust at Midway was made by approximately eighty ships including four carriers, at least three battleships, and a large number of cruisers, destroyers, and transports.

A simultaneous thrust was made on the Aleutians employing a far smaller force of approximately two small carriers, two seaplane tenders, several cruisers and destroyers and from four to six transports. The size of the forces involved shows the attack on Midway to have been the primary objective.

* * *

3. The first attack on Dutch Harbor and Fort Mears was made at about 6:00 A.M. on June 3, concurrently with the early stages of the Japanese attack on Midway. Five waves of three planes each, launched from carriers to the southward of Dutch Harbor, participated in the twenty-minute attack, which was concentrated on Dutch Harbor and the near-by Army Station at Fort Mears.

4. Three United States destroyers, an Army transport, a minesweeper, and a Coast Guard cutter were in the harbor, as well as an old station ship, the *Northwestern*, which had been beached and was used as barracks for contractors' personnel. The attack was not unexpected, and antiaircraft crews who were at their battle stations, both aboard the ships and at the shore batteries, opened fire five minutes before the first bomb was dropped. To obtain maneuverability the ships present got underway, continuing their antiaircraft fire. No ship was hit during the raid. Two of the attacking aircraft were shot down.

* * *

6. On June 4, Army bombers and Navy patrol planes

located and attacked the enemy carriers which had launched the attacking planes. Several bomb and torpedo attacks were made but results could not be observed.

7. One enemy plane was shot down during the several reconnaissance flights which the Japanese made over the Dutch Harbor area.

8. About 5 P.M. on June 4, 18 carrier-based bombers and 16 fighters attacked the installations at Dutch Harbor and Fort Mears. This attack was made simultaneously with an attack on the Army post at Fort Glenn, about 70 miles west of Dutch Harbor on the island of UMNAK, where nine enemy fighters strafed shore installations. Two of the attacking planes were shot down by Army pursuit planes and the remaining 7 withdrew without inflicting damage.

9. The alarm at Dutch Harbor and Fort Mears was sounded well in advance of the attack and the enemy was met with heavy antiaircraft fire from ship and shore batteries. The station ship *Northwestern* was bombed and destroyed by fire. A warehouse and a few fuel oil tanks were hit and set afire, and one empty aircraft hangar was hit.

* * *

Iceland

By the Associated Press.

REYKJAVIK, Iceland, Oct. 12.—American antiaircraft batteries rattled the windows of Reykjavik with fire yesterday when a German four-motored plane kept the city under a 40-minute alarm.

The bomber was driven off. The army did not announce whether hits were scored.

REYKJAVIK, Iceland, Oct. 24 (INS) Heavy antiaircraft fire from American batteries today drove off enemy planes which gave the Reykjavik area two air raid alarms. The first alert lasted 40 minutes; the second a half-hour.

Citations

Certificate of Commendation

E Pluribus Unum

HEADQUARTERS EASTERN DEFENSE
COMMAND AND FIRST ARMY,
GOVERNORS ISLAND, N. Y.

October 7, 1942

FOR ESPECIALLY MERITORIOUS AND OUT-
STANDING SERVICE, THIS CERTIFICATE OF
COMMENDATION IS AWARDED TO:

UNITED STATES ARMY MINE PLANTER

GEN. HENRY J. HUNT

CAPTAIN HARRY J. HARRISON COM-
MANDING

WARRANT OFFICER FREDERICK L. EPPS,
MASTER

CITATION:

The vessel, a mine planter of new design with practical tests still to be completed, arrived at (deleted) on August 29, 1942 at the end of what might be considered her maiden shake-down cruise.

While at that station from August 29 to September 19, 1942 the personnel worked without regard to hours and with a high degree of cooperation to obtain results which were beyond reasonable expectation, thereby rendering service of value which reflected great credit on the vessel's complement.

/s/ H. A. DRUM

H. A. DRUM

Lieutenant General, U. S. Army

Commanding

✓ ✓ ✓

Distinguished Service Medal

"Charles W. Bundy, Colonel, General Staff Corps (CAC), United States Army. Serving as an advisor during the conference between the President of the United States and the Prime Minister of England off Argentina during August, 1941, and as a member of the mission sent by the President to London and later to Moscow during September, 1941, he displayed superior judgment, force of character and a keen insight into the complexities of the problems presented in the formulation of joint plans vital to the security of his country. Colonel Bundy was again on a mission of great importance shortly after the outbreak of the war, when the plane in which he was a passenger crashed. He was denied by this unfortunate circumstance the rank of Brigadier General for which he had been selected. His splendid character, zealous devotion to duty and outstanding military attainments earned for him the esteem and respect of his comrades and afford a fine example of the highest soldierly qualities."

Colonel Bundy was born in Somerville, Massachusetts, April 29, 1890. He was graduated from Middlebury College, Vermont, in June, 1912, and was ap-

pointed a Second Lieutenant, November 28, 1916, in the Coast Artillery Corps, after having served in the Maine National Guard.

Colonel Bundy was graduated from the Coast Artillery School in 1924, from the Command and General Staff School in 1926, from the Army War College in 1934, and from the Naval War College in 1939.

Colonel Bundy was killed in the same crash that was fatal to Major General Herbert A. Dargue, Commanding General of the First Air Force, Mitchel Field, New York.

"George W. Ricker, Colonel, Coast Artillery Corps, United States Army. For exceptionally meritorious service in a position of great responsibility. As Director of the Department of Enlisted Specialists of the Coast Artillery School and Commanding Officer of the Enlisted Division of this School, during the period from August, 1940 to September, 1941, he conceived with sound technical prevision and with comprehensive human understanding the expansion of the annual output of enlisted specialist graduates by 500 per cent to meet the emergency needs of Coast Artillery regiments, and supervised with conspicuous success the operation of these expanded courses, as well as of the newly established Officer Candidate Courses of the Coast Artillery School. Later, as Chief of the Training Section in the Office of the Chief of Coast Artillery he rendered services of marked value to the Government."

Colonel Ricker was born in Newburyport, Massachusetts, November 6, 1892. He attended Bowdoin College, receiving a B.S. Degree in 1915. In 1917 he received an A.M. Degree at the University of Wisconsin. His military education included study at the Coast Artillery School in 1924, the Command and General Staff School in 1934, the Army War College in 1937, and the Air Corps Tactical School in 1939.

Colonel Ricker participated in four campaigns during the World War—the Aisne-Marne, the Voise-Aisne, the Meuse Argonne and the Defensive Sector.

Colonel Ricker, a member of the War Department General Staff, was killed in the same crash of an Army transport plane last December in California that was fatal to Major General Herbert A. Dargue, Commanding General of the First Air Force.

"William F. Marquat, Brigadier General, United States Army. For exceptionally meritorious service to the Government in a duty of great responsibility in the Philippine Islands, from November 5, 1941, to March 11, 1942. As Chief of Staff, Philippine Coast Artillery Command, Brigadier General Marquat devised a comprehensive system of seacoast artillery defense for the island sea areas of the Philippine Archipelago. He contrived the organization and training of Coast Artillery elements of the Philippine Army. On the outbreak of hostilities, working with speed and precision, he planned the constitution of an additional antiaircraft regiment

so effectively that personnel and matériel were assembled in action and in combat positions within twenty-eight hours. He prepared effectively the dispositions of mobile antiaircraft elements for the defense of the Bataan Peninsula and supervised the conduct of the antiaircraft defense. He planned and supervised the installation of additional seacoast defenses for the Bataan Peninsula. His brilliant technical ability, his capacity for rapid and sustained effort and his genius for improvisation to meet the needs of the situation contributed immeasurably to the ability of the command to offer sustained resistance."

"*William C. Braly*, Colonel, Coast Artillery Corps, United States Army. For exceptionally meritorious service to the Government in a duty of great responsibility, in the Philippine Islands, from December 8, 1941, to March 17, 1942. As Plans and Training Officer of the Harbor Defenses of Manila and Subic Bays, Colonel Braly had prepared detailed plans for the modernization of the defensive installation of the harbor defenses. On the outbreak of hostilities, he continued efficiently to prepare detailed operation instructions for the conduct of the defense, and for the installation of additional armament and for the construction of additional tunnels and other works providing protection against aerial attack. His effective staff work contributed materially to the success of the operations of the harbor defenses throughout this period."

Colonel Braly is believed to be a prisoner of the Japanese.

"*Harry M. Peck*, Colonel, Coast Artillery Corps, United States Army. For exceptionally meritorious service to the Government in a duty of great responsibility in the Philippine Islands from December 8, 1941, to March 11, 1942. Assigned to command a provisional regiment of antiaircraft artillery, later designated the 515th Coast Artillery (antiaircraft), Colonel Peck, with personnel from the 200th Coast Artillery, organized his regiment, obtained matériel from depot stocks, and within 24 hours had his command disposed for the protection of important areas in Manila and at Nichols Field against aerial attack. Subsequently, this unit covered critical points on routes of withdrawal to the Bataan Peninsula and was disposed for aerial defense of Bataan. His effective leadership was demonstrated by the excellent results achieved by his command in spite of greatly reduced numbers for the armament manned. Entered military service from Albuquerque, New Mexico."

Soldier's Medal

Raymond Davidson, private first class, Coast Artillery Corps. For heroism at Washington, D. C., on March 14, 1942. Residence at enlistment: Bobtown, Pennsylvania.

Jackson L. Dietz, Jr., corporal, Coast Artillery Corps. For heroism at Washington, D. C., on March 14, 1942. Residence at enlistment: Hydes, Maryland.

William R. Nixon, Jr., private, Coast Artillery Corps. For heroism near Lee Hall, Virginia, on May 6, 1942. Residence at enlistment: Dover, New Jersey.

Lenzy L. Keen, corporal, Coast Artillery Corps. For heroism near Red Lion, Canal Zone, on February 7, 1942. Residence at enlistment: Dallas, Texas. (Posthumous award.)

Rex J. King, private first class, Coast Artillery Corps. For heroism at Wilmington, North Carolina, on June 29, 1941. Residence at enlistment: Clawson, Utah.

Andrew Shestock, private, Coast Artillery Corps. For heroism at Newfoundland on April 21, 1942. Residence at enlistment: Buffalo, New York.

Norman T. Aarseth, private first class, Coast Artillery Corps. For heroism at Fort Wadsworth, New York, on June 30, 1942. Residence at enlistment: Woodhaven, New York.

Walter Stevenson, sergeant, Coast Artillery Corps. For heroism at Curacao, on April 24, 1942. Residence at enlistment: Pottsville, Pennsylvania.

Nicholas Kuzmyak, technician, fifth grade, Coast Artillery Corps. For heroism in the South Pacific Area on July 14, 1942. Residence at enlistment: Brooklyn, New York.

Charles R. Cooper, private, Coast Artillery Corps. For heroism in Panama on June 17, 1942. Residence at enlistment: Bayport, New York.

Lawrence C. Raynes, private first class, Coast Artillery Corps. For heroism in Alaska, on January 31, 1942. Residence at enlistment: Reedsport Douglas, Oregon.

Earle L. Carran, first lieutenant, Coast Artillery Corps, member of the first Rangers Battalion. For heroism in rescuing an enlisted man from drowning in Scotland, on July 6. Residence before entering army: Fort Mitchell, Kentucky.

Donald B. Millar, staff sergeant, Coast Artillery Corps. For heroism at a Pacific Base on April 3, 1942. Residence at enlistment: Gordon Heights, North Carolina.

William R. Pepin, sergeant, Coast Artillery Corps. For heroism at Beavertail, Rhode Island, on September 4, 1942. Residence at enlistment: Providence, Rhode Island. Sergeant Pepin, Private First Class Arouca, and Private First Class Sousa rescued members of the crew of a Navy airplane which sank after a crash landing.

Henry W. Arouca, private first class, Coast Artillery Corps. For heroism at Beavertail, R. I., on September 4, 1942. Residence at enlistment: Bristol, R. I.

Virgin S. Sousa, private first class, Coast Artillery Corps. For heroism at Beavertail, R. I., on September 4, 1942. Residence at enlistment: Bristol, R. I.

William H. Sanderson, corporal, Coast Artillery Corps. For heroism in the Netherlands West Indies, on June 20, 1942. Residence at enlistment: Rocky Point, Route 1, North Carolina. Corporal Sanderson saved the life of a fisherman swept from shore in a heavy surf.

COAST ARTILLERY



BOARD NOTES

Any individual, whether or not he is a member of the service, is invited to submit constructive suggestions relating to problems under study by the Coast Artillery Board, or to present any new problems that properly may be considered by the Board. Communications should be addressed to the President, Coast Artillery Board, Fort Monroe, Virginia.

THE COAST ARTILLERY BOARD

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LIEUTENANT COLONEL ANDREW W. CLEMENT
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CAPTAIN ROSCOE E. HARRIS, S.C.
FIRST LIEUTENANT FRANCIS S. BUFFINGTON

Damage tables. During October, copies of damage tables were mailed to all harbor defense commanders. The sixty-nine tables, found in the volume distributed, tabulate the theoretical number of shots required to destroy different types of vessels under various circumstances. In the use of damage tables, the method of their construction must be borne in mind. The first twelve pages of the pamphlet are devoted to a discussion of the assumptions and methods used in calculating the tables. A small number of additional copies is available for distribution to harbor defense or subsector commanders who do not receive copies within a reasonable length of time.

Map projections and grids for harbor defense artillery. The correct operation of fire control equipment requires that the instruments, plotting boards and guns be properly and accurately oriented. In order to secure maximum efficiency in the harbor defense fire control system, it is essential that the data for the orientation of the equipment be complete, accurate, and based on a uniform system throughout any one harbor defense. The first step in providing accurate orientation data is to provide a local plane projection which includes the stations and fields of fire of the harbor defense batteries. This projection should have negligible distortion and facilitate the rapid and simple conversion of geographic coordinates to grid coordinates. Since the fixed gun azimuth circles were installed to read azimuths from true south, the map projection must be one that will not result in the grid south diverging from true south by more than the one-degree adjustment provided in the vernier. The military map grid coordinate system is based on a polyconic projection. In the majority of harbor defenses the military grid system could not be used because the divergence of grid south from true south exceeds one degree; and is not desirable because the polyconic projection involves greater error than is acceptable, because not easily corrected. The Lambert projection has been

used by the Coast and Geodetic Survey in establishing a grid for almost all harbor defenses because it has three important advantages: (1) A high degree of accuracy is obtainable by the use of this projection over a limited area such as a harbor defense; (2) The divergence between grid south and true south is small; and (3) The conversion of geographic to grid coordinates and the computation to obtain the distance and azimuth between two points whose coordinates are known is comparatively simple.

Four steps are required in setting up a rectangular grid.

a. Preparation. Listing of the directing guns and fire control stations which are to be surveyed.

b. Field work. This requires special equipment of high-precision theodolites and 100-foot towers; and use of this equipment by personnel trained in geodetic methods. Such methods are necessary because of the great distances involved in the fire control system of modern harbor defense.

c. Computation of the grid. Where this is done by trained personnel, with conventional methods of checking the accuracy of the work, the resulting orientation system may be relied on.

d. Breakdown to cover new installations. Where a highly accurate and rigid framework including many points accurately established has been set up, then the necessary extension of the survey to include new fire control stations and directing guns of new batteries can be carried out by ordinary survey methods; and if errors occur in this process, they can be discovered and eliminated.

Within the past three years, through arrangements made by the Chief of Engineers, practically all of our harbor defenses have been surveyed by the U. S. Coast and Geodetic Survey, and a local grid computed by the Survey on the Lambert Conformal Projection.

In order that this information may be disseminated,

the Board recently recommended additions and changes to AR 300-15, TM 4-225, and FM 4-15.

Universal deflection board charts and scales. The universal deflection board charts and scales in degrees now issued by the Coast Artillery Board are plotted to a scale of one inch equals one degree. This scale was previously selected for the sake of uniformity, since some charts to a larger scale would not fit the universal deflection board without extensive modifications to the board.

However, it is realized that these charts and scales if plotted to a larger scale would give greater accuracy and might be preferred by some units, even though some modifications to the board will be necessary. For this reason, the Coast Artillery Board will prepare and supply universal deflection board charts in degrees to a scale of two inches equals one degree at the specific request of organizations. No subcaliber charts should be requested since subcaliber charts to this scale would be too large to use without major modifications to the board. Requests should contain the full designation of projectiles and fuzes for which charts are required.

It will be necessary to modify the support of the adjustment correction pointer before the new charts and scales can be used. This pointer is clamped to a rod (see Figure 49, Field Manual 4-15), which is held at its ends by two brackets. It will be necessary to modify this arrangement permitting the pointer to be set at a position further to the right so that it will be opposite the normal of the adjustment correction scale (see paragraph 102, Field Manual 4-15). In some cases, this will require that the left-hand bracket supporting the rod be moved to the right and the right-hand bracket moved to the left. The pointer should then be clamped to the rod at a position to the *right* of the right-hand bracket, rather than between the brackets. In other cases, it may be necessary to use a longer rod, supported by the two brackets, with the pointer clamped at a position to the right of the right-hand bracket. The rod must be rigid so that it will not sag enough to make reading on the correction scale difficult or cause interference with the road index. The amount of modification necessary will depend upon the particular adjustment correction scales employed and the horizontal spread of the wind and drift curves for the ammunition on hand. For this reason, the modifications should not be made until the charts and scales have been obtained from the Coast Artillery Board.

The azimuth tape to a scale of two inches equals one degree would be too bulky to fit on the board if it were made to read from zero to 360 degrees. Consequently, this scale indicates only the tens, units, and hundredths of degrees of azimuth, with the hundreds of degrees being shown in the circular window over the set index. This method of labeling is discussed in subparagraph 101 b. (1) of Field Manual 4-15.

Check points on fire control charts. At present, check points are provided on the range correction board and

deflection board charts supplied by the Coast Artillery Board. These points are used to check the mechanical operation of the boards by setting the pointers to the indicated points and noting whether or not the corrected deflection or azimuth obtained agrees with that printed on the chart.

Charts prepared in the future will not contain check points, although deflection board charts will have check ranges or elevations indicated on them. The local organization will then add check points. However, in the case of the deflection board charts, check points should be added only at the indicated check ranges or elevations. Corrected deflections and corrected azimuths, as calculated for the indicated check points from firing tables, should then be recorded on the chart. In calculating corrected deflections for the M1 deflection board, angular travel should be included for Case II pointing.

It is necessary that check ranges or elevations be indicated by the Coast Artillery Board on the deflection board charts, due to the fact that the curves are plotted from smoothed data. The deflection effects given in firing tables do not vary smoothly, but in steps; and the Board plots these data so as to obtain a smooth curve. Thus, the curves will agree exactly with the effects calculated from firing tables only at certain ranges, some of which will be indicated on the charts as check ranges or elevations.

The Coast Artillery Board believes that requiring the local organization to calculate its own check points from firing tables is the most effective method of insuring that the organization has the correct charts for the ammunition on hand. When the Coast Artillery Board furnishes full check point data, the mechanical operation of the board can be checked, but there will be no check on whether the charts are the correct ones for the ammunition available. The local calculation of check points also will furnish valuable training in the calculation of data from firing tables.

Contact ring for the 8-inch railway gun mount. The M1A1 8-inch railway mount is equipped with data receivers. In order that the data transmission lines might be connected through slip rings, a contact ring assembly was designed and furnished for test. The unit contained twenty slip rings mounted in a cover and cable unit with a conduit assembly and a support. The support is a welded assembly consisting of two angles carrying a plate which is cut out to receive the contact ring. The support is centered directly under the center of rotation of the top carriage. Ballast is removed from between two ties to make room for the contact ring. The input cable is placed under the rail. The cable to the gun runs through an elbow which is free to turn. Sufficient slack must be left in the output cable to provide for movement of the mount during firing.

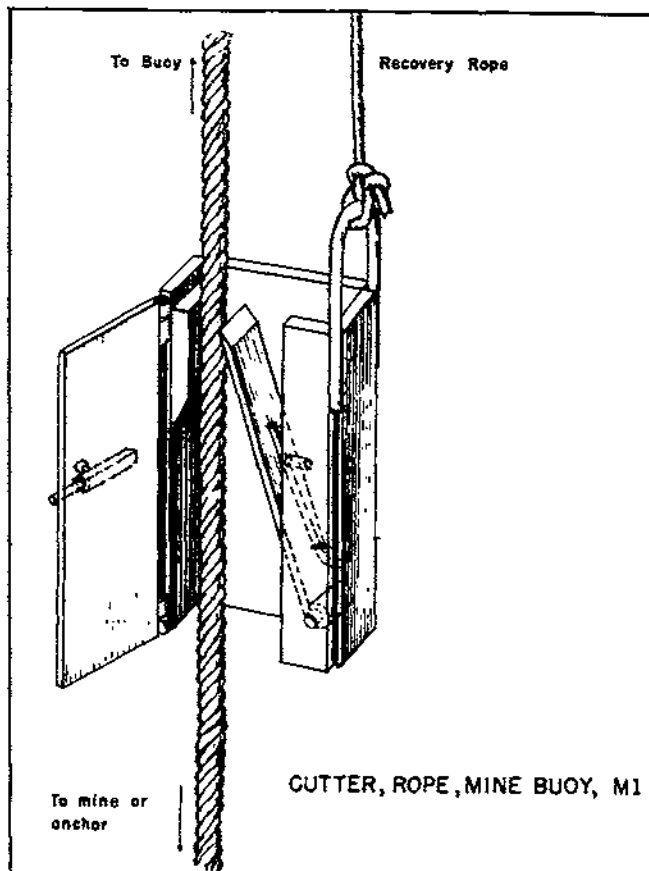
The firing test of the contact ring consisted of transmitting data and firing ten rounds of the 260-pound target practice projectile with supercharge at various

elevations and azimuths. No malfunctioning of the ring occurred. The mount shifted slightly along the track, but this did not affect the operation of the contact ring. The results of the test indicate that the contact ring is suitable and will permit the use of the data transmission system throughout unlimited traverse. However, the Coast Artillery Board is of the opinion that the contact ring is not essential and with this point in view a length of cable was installed without using the contact ring. The cable was fastened to the top carriage by means of the conduit assembly and was brought out under the rails from beneath the pintle center. About twenty-four inches of slack was left in the cable between the clamp and the rails. Traversing the gun 360 degrees merely caused the slack to take the form of a single loop. The provision of a waterproof plug at a point in the cable just outside the rails would permit the removal of any twist in the cable by the operation of disconnecting the plug, removing the twist and reconnecting the plug. In this manner, unlimited traverse could be obtained. Although the plug would not be required in normal operating conditions, the provision of such a plug is warranted since it is a simple device and it will facilitate the connection of the data transmitters upon arrival in position.

The Coast Artillery Board recommended that the contact ring not be provided but that the data transmission system for the 8-inch Railway Mount M1A1 be provided with brackets and clamps for fastening the cable to the top carriage, and a waterproof plug which can be connected and disconnected readily at a point in the cable outside the tracks.

Time Interval Apparatus EE-86-A. Technical Manual 11-433, dated August 17, 1942, contains a description and sketches of the new Time Interval Apparatus EE-86-A. A production model of this equipment was recently received by the Coast Artillery Board and given an extended accuracy test. In the time accuracy tests, extending over a period of fourteen days, the average error was + 0.0025 per cent. The maximum errors observed over any twenty-four-hour period were + 0.199 per cent and - 0.156 per cent. Variations from the average error over any five-minute period, during an arbitrarily selected two-hour check, did not exceed 0.5 second or 0.167 per cent.

Examination of the equipment at the beginning and at the conclusion of the test revealed no obvious defects. The EE-86-A unit differs from the older Time Interval Apparatus EE-56 in that four cam discs have been added to gain four more time intervals, the speed of the motor has been increased to 1,380 revolutions per minute, a master timing contact has been added, the motor governor is of an improved type and a stroboscopic tuning fork for adjusting the governor has been included with the unit. The apparatus is considered satisfactory and a basis of issue of two per harbor de-



fense fire control switchboard room has been recommended.

Mine buoy rope cutter. A device was recently developed by the Submarine Mine Depot to reduce the requirement of mine batteries for $\frac{5}{8}$ -inch manila buoy line. Various means have been tried whereby the rope attached to the mine at the time of planting could be recovered. Because of the twisting of double lines and other practical difficulties, it has never been feasible to recover this line which amounts to thousands of feet in a single project.

The cutter shown in the attached sketch was tested by the Coast Artillery Board in a depth of water of approximately ninety-five feet. It operated easily and simply to permit the recovery of a $\frac{5}{8}$ -inch line tied to an anchor which simulated a mine. Its operation is such that little training in its use is required. The rope to be recovered is placed in position in the cutter with the blade bearing against it. The cover then is closed and bolted shut. The weight of the cutter causes it to travel down the buoy rope which should be held taut. When the recovery line on the cutter becomes slack, it is known that the cutter is at the mine. A quick upward pull on the recovery line (ten to fifteen pounds) severs the raising rope, after which both cutter and raising rope are recovered.

The standardization and issue of the cutter has been recommended.



Antiaircraft Artillery Board



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Most of the work of the Antiaircraft Artillery Board is of a confidential or secret nature. Therefore, it is impracticable to discuss many of the matters under study by the Board.

A few unclassified items on which the Board has made recommendations since publication of the last issue of the *COAST ARTILLERY JOURNAL* are discussed in the paragraphs below.

Gasproof Cellophane Capes. The Antiaircraft Artillery Board recently received samples of a gasproof cellophane cape which is intended to protect personnel from gas spray disseminated from aircraft. It is intended that the cape be worn during one gas attack and then discarded. The capes received are of two types, capes with slits in the sides through which the arms may be thrust, and capes with no provision for permitting use of the arms. The capes are in the shape of an envelope, put on by slipping over the head of the wearer. As designed, the garment is satisfactory for protecting men when they are immobile and when there is no necessity for manning armament. However, the duties of an antiaircraft defense may be expected to be exceptionally heavy during spray gas attacks, and a cape that renders personnel immobile during a gas attack does not fill the requirements of the antiaircraft artillery. The Antiaircraft Artillery Board submitted recommendations for improving the design of the cape by providing suitable sleeves to permit pointer matchers, automatic weapon gunners, and height finder and director operators to perform their combat duties while under gas attack.

Use of Radio Set SCR-543-A in Antiaircraft Artillery Brigade and Regimental Nets. The Radio Set SCR-543-A was recently tested by the Antiaircraft Artillery Board to determine its usefulness as a replacement for Radio Set SCR-177 in brigade and regimental nets. Due to the complexity of design of the Radio Set SCR-177, it has been found increasingly difficult to supply the necessary number of this type radio set to fulfill the needs of the antiaircraft artillery. The Radio Set SCR-543-A has been standardized for use up to and including the battalion-regimental nets, and it was deemed desirable to determine if this equipment has sufficient range to replace Radio Set SCR-177 for communication between the regiments and brigade. The Radio Set

SCR-543-A is an amplitude-modulated, radio-telephone transmitter and receiver equipped for operation both from 12-volt battery and gasoline-driven 115-volt, 60-cycle, generator supply. (The transmitter can operate only from 115-volts, 60-cycle current.) Both receiver and transmitter are crystal controlled, though the receiver may be manually controlled by the use of a selector switch. Six pre-tuned channels are employed and are selected by means of a channel switch. Loud-speaker or head-phone reception is optional. The set is designed normally to operate from a 15-foot vertical antenna either while in the travelling or stationary position. The program of the Antiaircraft Artillery Board's test of the Radio Set SCR-543-A was arranged to determine:

- a. The reliable range for voice communication between transmitter and receiver of the radio set under various conditions of terrain as a fixed and mobile station.
- b. The effect of different frequencies on the reliable range for voice communication under the above conditions.

It was assumed that regiments separated further than fifty miles from brigade headquarters probably would be detached. The results of the test showed that the Radio Set SCR-543-A, equipped with 24-foot rod antenna, would furnish reliable communication over a distance sufficient for brigade-regimental net operation.

The Antiaircraft Artillery Board recommended that the Radio Set SCR-543-A, together with certain equipment necessary to properly support the 24-foot antenna, be issued to regimental and brigade headquarters in lieu of the Radio Set SCR-177.

Ammunition Rack for 37mm M3A1 and 40mm Antiaircraft Guns. Due principally to a lack of sufficient ammunition clips, automatic weapon batteries have often experienced considerable trouble distributing their clipped ammunition so as to have a sufficient quantity adjacent to the feed tray of each gun. The Antiaircraft Artillery Board recently received a proposal for an ammunition rack to be mounted on the 37mm Antiaircraft Gun M3A1. The ammunition rack consists of a metal, box-like container, 21½" x 13½" x 11¾" deep and is mounted on the upper carriage. Brackets attached

to the upper carriage hold the ammunition rack in place. It is proposed that the ammunition rack be capable of carrying five clips (fifty rounds). This supply of ammunition adjacent to the feeding tray would insure a limited supply of ammunition at the gun in the event of casualties among the ammunition detail. It would also insure a supply of ammunition to the loader regardless of the direction of fire. However, two disadvantages of the ammunition rack may be pointed out. In the first place, in the event the loaded rack receives a direct hit, there is likelihood of greater damage to gun and personnel. Secondly, the load rack will add approximately 200 pounds to the top carriage. This additional weight may interfere with the proper operation of the remote-controlled guns. Believing that an ammunition rack for 37mm and 40mm guns is a desirable feature, the Antiaircraft Artillery Board recommended that the Chief of Ordnance be requested to design and construct suitable ammunition racks for the 37mm M3A1 and 40mm antiaircraft guns.

Demonstration of Rocket Targets. During the month of October, the Antiaircraft Artillery Board conducted a demonstration of rocket employment in advanced target practice exercises. In the demonstration four 40mm guns, two 37mm guns and five caliber .50 machine guns were fired. Three rocket projectors were used, one located on the left flank, one on the right flank, and one behind the firing batteries. The demonstration, divided into two parts, consisted of sixteen courses. The first eight courses were fired primarily to illustrate the variety of courses available in the use of rockets and the rapidity with which rockets can be propelled through space. In the remaining eight courses, two or three rockets were fired at a time, the course being designed to present typical situations an antiaircraft battery might encounter in actual combat. For example, the problem of target designation was presented wherein a battery was confronted simultaneously with a crossing constant-altitude course and a crossing-diving course. Another situation presented was that in which two rockets were fired on a crossing-diving course, one rocket just behind the other. The first rocket represented an enemy dive bomber, while the second rocket presented a friendly craft in hot pursuit. The problem was to hit the enemy without hitting the friend. Still another tactical situation illustrated was one requiring the guns to change targets when confronted with

various targets flying different types of courses; e.g., a crossing-diving course and an outgoing course. A most realistic target was obtained by equipping each rocket with a whistle device which imitated the sound of a plane in a dive or in a swoop across a field of fire.

That there is a large gap existing between target practice and actual battle conditions long has been recognized. Although the sleeve target is satisfactory for training green gun crews during initial stages of training, there is a definite need for rockets in later phases of training to give gun crews a target that closely resembles both in speed and variability of course the type of target they are apt to encounter in actual combat.

Hand Hold for Gunner of 90mm Antiaircraft Gun. During recent studies for improvement of safety conditions on 90mm antiaircraft guns, it was suggested that a hand hold be placed on the right trunnions of 90mm Gun Carriages M1 and M1A1. A model hand hold was constructed by the Antiaircraft Artillery Board and used experimentally by both the Board and the Antiaircraft Artillery School. In the past many gunners have made a practice of holding with the right hand to the breech operating handle. The disadvantage of this practice is that sometimes the handle is moved from the full closed position and thereby holds the breech block partly open and prevents further firing until the breech block is fully closed. The proposed hand hold would prevent this occurrence. It does not affect the use of the gun when loading by means of the spring rammer, nor does it interfere in any manner with the operation of the mount or gun. Its advantages are as follows:

- a. It provides support for the gunner and thus reduces the likelihood of his falling.
- b. It aids the gunner in ramming ammunition into the gun because of the direct pull between the two extended arms.
- c. It aids the gunner in positioning himself relative to the mount when the gun is being traversed during firing (this is particularly true at night).
- d. It will prevent the gunner from using the breech operating handle as a support.

In its recommendations, the Antiaircraft Artillery Board requested that the Chief of Ordnance place on each 90mm Antiaircraft Gun Carriage M1 and M1A1 now in the field or to be procured, a practicable hand hold for the use of the gunner during hand loading.



Coast Artillery Journal

Fifty-first Year of Publication

COLONEL FREDERIC A. PRICE, Editor

MAJOR ARTHUR SYMONS, Associate Editor

MASTER SERGEANT CHARLES R. MILLER,
Circulation Manager



The JOURNAL prints articles on subjects of professional and general interest to officers of all the components of the Coast Artillery Corps in order to stimulate thought and provoke discussion. However, opinions expressed and conclusions drawn in articles are in no sense official. They do not reflect the opinions or conclusions of any official or branch of the War Department.

The JOURNAL does not carry paid advertising. The JOURNAL pays for original articles upon publication. Manuscripts should be addressed to the Editor. The JOURNAL is not responsible for manuscripts unaccompanied by return postage.

The United States Coast Artillery Association

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The purpose of the Association shall be to promote the efficiency of the Coast Artillery Corps by maintaining its standards and traditions, by disseminating professional knowledge, by inspiring greater effort towards the improvement of materiel and methods of training and by fostering mutual understanding, respect and cooperation among all arms, branches and components of the Regular Army, National Guard, Organized Reserves, and Reserve Officers' Training Corps.

News and Comment

Washington Meeting

Forty-six officers of the Coast Artillery Corps on duty in and around Washington assembled at the Army and Navy Club on the night of October 16 for a get-together dinner.

Following the dinner the officers were addressed by Major General William E. Cole of Washington, and Brigadier General David P. Hardy of Camp Pendleton, Virginia.

A talk on the armament of the Harbor Defenses of Manila and Subic Bays as it existed at the opening of hostilities and on the artillery action during the resulting Japanese attacks was given by Colonel Frederic A. Price.

It was voted to hold the next meeting as a cocktail party at the same location. All Coast Artillery officers and ladies present in Washington on Thursday, December 10, 1942, are urged to attend during the hours 5:30 P.M. to 7:30 P.M. Those who can attend are requested to phone or write to the Editor, COAST ARTILLERY JOURNAL, 631 Pennsylvania Avenue, N.W., REpublic 7812.

Election of Officers

The terms of office of the President of the Coast Artillery Association and of three members of the Executive Council expire December 31 of this year.

In order to conserve on volume of mail, separate ballots are not being sent to the members of the Association. They are requested to cut out the ballot to be found printed further on in this issue, mark it as they desire and mail it to the Secretary, U. S. Coast Artillery Association, 631 Pennsylvania Avenue, N.W., Washington, D. C. Postal regulations do not permit the inclusion of a detached ballot within the pages of the JOURNAL.

All members of the Association are urged to vote. Although but one name has been listed under each office to be filled, members are free to write in the name of any other person of their choice.

There are many serious matters to be discussed at future meetings of our Association. In order that the operating management of the Association and of the JOURNAL may have the help and advice of the Executive Council it is most desirable that a majority of the Council be on duty in or near Washington. In order to aid further in securing a quorum at meetings of the Council, it is believed desirable to give the Secretary-Treasurer a vote at such meetings by making him a regular member of the Council.

Due to the large number of members who are on duty

outside the continental limits of the United States, ballots will be received and counted to include January 31, 1943.

"The elective officers of the Association shall be a President, a Vice President, and seven members of the Executive Council. They shall hold office for two years, or until their successors have been appointed."

Short biographies of the nominees recommended are as follows:

For President: *Major General Joseph A. Green.*

General Green became President of the Association upon his appointment as Chief of Coast Artillery, April 1, 1940. He held that office until its functions, duties, and powers were transferred to the Commanding General, Army Ground Forces. General Green was then appointed Commanding Officer, Antiaircraft Command. He is known officially to a large majority of the members of the Association, and both officially and affectionately to most of us of the older variety.

For Members of the Executive Council.

Colonel Frederic A. Price, G.S.C.

Colonel Price has held the office of Secretary-Treasurer of the Association and Editor of the COAST ARTILLERY JOURNAL since February 25, 1942. His service has been continuous in the Coast Artillery Corps since 1909. He is a graduate of the Coast Artillery School Advanced Course, the Command and General Staff School, and of the Army Industrial College.

Colonel Daniel W. Hickey, Jr., G.S.C.

Colonel Hickey has been on active duty in the Coast Artillery Corps since 1917. He is a graduate of the Coast Artillery School (Battery Officers, Advanced Engineering, and Advanced courses) and of the Command and General Staff School. Upon the reorganization of the Army in March of this year, Colonel Hickey was transferred from the Office, Chief of Coast Artillery, to head the Coast Artillery Branch of the Requirements Section of Headquarters, Army Ground Forces.

Lieutenant Colonel John J. Sparkman, CA-Res.

Colonel Sparkman is a native of Alabama, and is a representative from that state in Congress. He is a graduate of the University of Alabama, and was admitted to the bar in 1923. Colonel Sparkman is a member of the House Military Affairs Committee, and has long been interested in the Army and its problems. His interest in Reserve affairs, both from a personal standpoint as a Reserve officer and from the standpoint of a lawmaker, has taken much of his time. His record in Congress as a proponent of preparedness has been notable.

More JOURNAL Boosters

The JOURNAL's friends in the field are still getting signatures on the dotted line—and the heavy line on the circulation chart is still going up.

Colonel H. A. McMorrow, commanding the 601st Coast Artillery, led off last month with twenty-six new

INSTRUCTIONS AND INFORMATION

1. Please record your vote by making an "X" in the appropriate square or indicate your choice by writing in the name of your candidate. Ballots received with signatures, but with no individual votes recorded, will be considered proxies.

2. Each candidate was considered in connection with the geographic location of his residence and also the component of which he is a member. It is considered advisable to have at least five members of the Council resident in or near Washington in order to facilitate the transaction of business.

3. Ballots received after January 31, 1943, cannot be counted.

4. Ballots may be collected by Post, Regimental, or other unit commanders and forwarded under one cover.

BALLOT

UNITED STATES COAST ARTILLERY ASSOCIATION

For President (1943-1944)

☐ Major General Joseph A. Green, U.S.A.

☐ _____

For Members of the Executive
Council (1943-1944)

(Vote for Three)

☐ Colonel Frederic A. Price, G.S.C.

☐ Colonel Daniel W. Hickey, Jr., G.S.C.

☐ Lt. Colonel John J. Sparkman, CA-Res.

☐ _____

☐ _____

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subscriptions. The first name on the list was Colonel McMorrow's own. Colonel Coburn L. Berry, of the 511th Coast Artillery, sent in eighteen subscriptions for units of his regiment, all of them to be charged to the Colonel personally. Colonel Berry, of course, is a long-time subscriber.

Captain Charles W. Ward, adjutant of the 14th Coast Artillery, signed the letter forwarding nine subscriptions for officers in that regiment. An unusual order came from Headquarters, Automatic Weapons Groupment, A.P.O. 953—thirty subscriptions in a bulk order, all to be sent to that address.

Another commander who takes his own advice is Lieutenant Colonel Eugene J. Welte, of the 102d Separate Battalion, CA(AA). Twenty-five subscriptions, including Colonel Welte's, came in on one group order. The 469th CA(AA), joined the exclusive ranks of the 100% organizations, with an order for eighteen subscriptions. Lieutenant Colonel William P. Bray commands the organization.

Keeping Posted

(Items of interest from official publications)

Coast Artillery Field Manual 4-112, Antiaircraft Artillery Gunnery, Fire Control, Position Finding, and Horizontal Fire, Antiaircraft Automatic Weapons (Case I Firing), dated August 22, 1942, has been distributed to the service.

W.D. General Orders No. 46, September 17, 1942, names Coast Artillery batteries for Colonel John M. Dunn, Lieutenant Colonel Ralph E. Herring, Colonel Charles Hunter, and Brigadier General E. Eveleth Winslow.

W.D. Circular No. 316, September 17, 1942, details instructions for the care and maintenance of rubber tires. Rescinded by Circular 372, which refers to TM 31-200 for information on the subject.

AR 100-20, Corps of Engineers, Fortifications, governs the preparation of seacoast defense projects, and the construction, maintenance, and repair of such fortifications for the Army, except where otherwise prescribed by the Secretary of War for localities outside the continental United States.

Changes No. 1, September 25, 1942, to AR 775-10, Qualification in Arms and Ammunition Training Allowances, contains much information of vital importance to AA organizations.

Addenda No. 3 to 1942 Supplement to TM 4-235, dated September 29, 1942, Instructions for Antimotor Torpedo Boat Target Practices, details safety precautions, scoring procedure, records, etc., for this type of firing.

Changes No. 1, dated October 1, 1942, to AR 90-150, Coast Artillery Corps, Army Mine Planters, General, concerns reports of inspections of boilers.

W.D. General Orders No. 49, October 1, 1942, names a Coast Artillery battery in New York for Colonel Isaac Newton Lewis, and names the military reservation at Cape Charles Fort John Custis in honor of Captain John Parke Custis.

AR 100-22, *Corps of Engineers, Record of Assignment, Location, and Composition of Mobile and Portable Searchlight Units*, October 10, 1942, apply to all movable searchlight units, including mobile and portable antiaircraft and seacoast searchlight units. They do not apply to fixed searchlights which are installed in and become a permanent part of seacoast fortifications.

Memorandum No. W210-14-42, *The Adjutant General's Office*, October 10, 1942, designates the Cape Flattery Military Reservation, in the Harbor Defenses of Puget Sound, Fort Hayden, in honor of Brigadier General John L. Hayden.

AR 55-510, *Transportation Corps, Harbor Boat Service*, organizes the Harbor Boat Service as a branch of the Transportation Corps, and details general instructions in the operation of harbor boats. This AR is of special interest to the Army Mine Planter Service.

AR 55-145, *Transportation Corps*, September 30, 1942, contains instructions pertaining to transportation of troops, including entraining, duties en route, and detraining.

Training Circular No. 74, October 26, 1942, publishes

certain changes in portable searchlight equipment. (These changes are largely as mentioned in "Coast Artillery Board Notes" in the September-October JOURNAL.)

W.D. General Orders No. 58, October 29, 1942, names a Coast Artillery camp on Long Island, New York, for Major General Andrew Hero, Jr., a former Chief of Coast Artillery.

* * *

The JOURNAL Moves

The JOURNAL is now located at 631 Pennsylvania Avenue, N.W., in Washington, D. C.

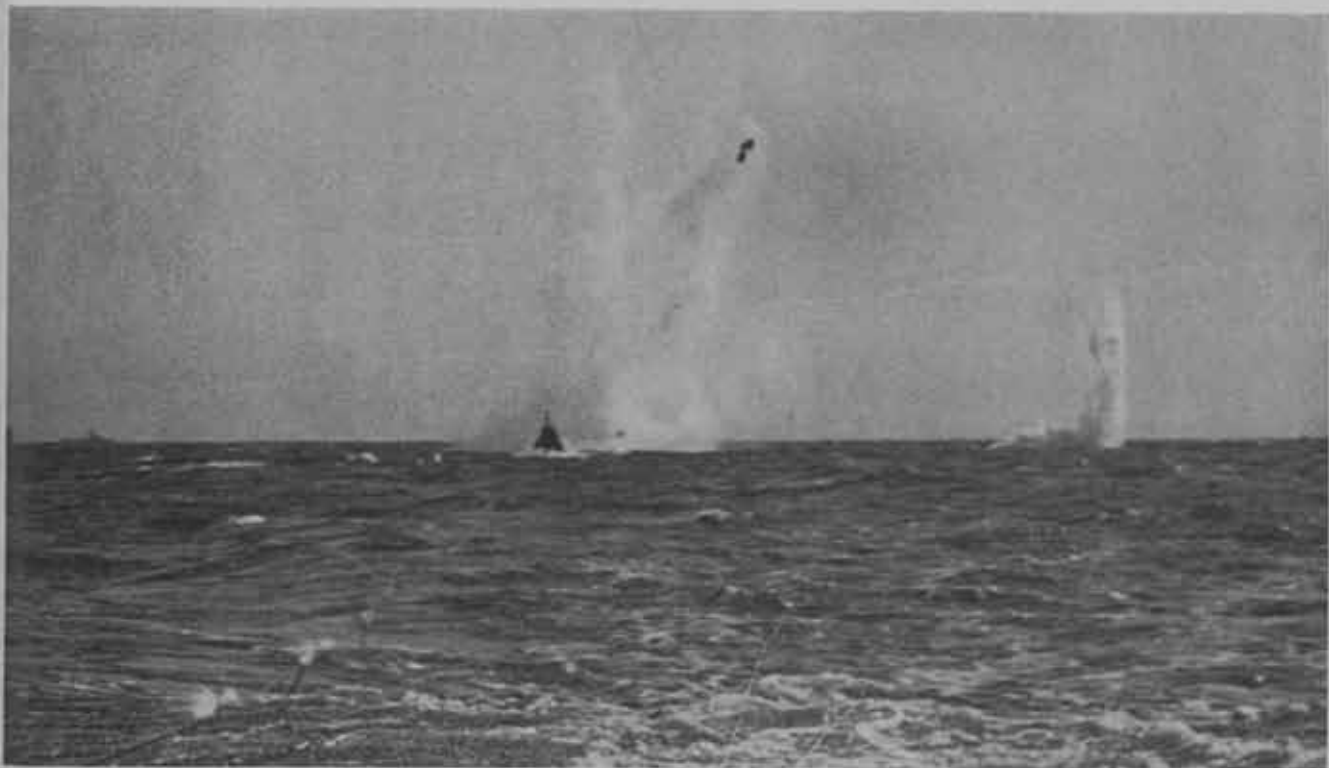
Wartime expansion of activities has made it necessary for the COAST ARTILLERY JOURNAL to find new quarters—a major undertaking in crowded Washington. We were fortunate, however, in finding offices that are well located for the purposes of our business.

When you are in Washington, stop in to see us. We are always interested in your ideas and your criticism, and are happy to meet members of the Association.

* * *

General Officer Promotions

Brigadier General LeRoy Lutes, assigned to duty with the Services of Supply, was promoted to the rank of major general early in November. Colonel Paul W. Rutledge, CAC, was promoted to brigadier general at about the same time.



A hit!—and no room for argument. The black spot in the splash is part of a target destroyed by a battery in the Harbor Defenses of Chesapeake Bay.

More About Steel Cartridge Cases

Change-over from brass to steel cartridge cases for all types of fixed-artillery ammunition will be complete before the first of the year, the War Department has announced.

Major General Levin H. Campbell, Jr., Chief of Ordnance, Services of Supply, credited the Ordnance Steel Cartridge Case Industry Integrating Committee with the accomplishment, which he described as "amazing."

"This job," he said, "would have taken from three to four years in peacetime. In war, it's been done in six months."

Every committee member, with the exception of Ordnance Department officer members, is an executive or engineer of one of the more than two score industries manufacturing steel cartridge cases. A majority of these companies is already in mass production of steel cases. The cases range in size from 20mm to 105mm.

Substitution of steel for brass in the manufacture of artillery cartridge cases—a major development of Ordnance—is part of a broad Army conservation program, made necessary by huge war demands on critical materials.

General Campbell said the United States leads the world in the development of steel cartridge cases. He pointed out that one factor which had speeded the change-over is the perfection, "almost overnight," of a cold-forging process which turns out cartridge cases in a matter of moments. Only two minor machine operations then remain before the case is ready for shipment to a loading plant.

"The committee," General Campbell said, "has worked this out so you take a disk of cold steel and without heating it at all, in less than half a dozen operations, wind up with a completely forged steel case."

As initially produced abroad, the assembly job required something like 450 hours for each gun and, being hand-finished, each retained an individuality that precluded an interchangeability of parts or speed of output.

At the outset the original blueprints sent from England were laid out in the metric system and had to be converted into the decimal method of measurement; moreover, many of the dimensions were on a "flat" basis, leaving no tolerance. This was not needed on a job in which each unit was hand finished.

To go to a volume-production program which means, first of all, parts interchangeability, the tolerances had to be provided for. Then came the development of new boring, honing, and rifling machinery for the more delicate operations in gun-barrel making.

Something like 800 machine tools were required to "Americanize" the gun, including various types of reamers, drills, presses, honing devices, and many special jigs and precision tools. Chrysler put the gun into production last February; production today is more than thirty times that of the first month of output.

Chrysler is making the Bofors for both the Army and the Navy, in the same factories. For the Navy the weapons are built with water-cooling jackets; for the Army they are air-cooled.

The component parts of the cannon come to the Chrysler plants as rough forgings, castings, or stampings. They go through hundreds of machining operations, an idea conceived by Mr. Keller to speed up production.

In one operation a 300-pound steel forging from which the breech ring is made is machined down to 105 pounds; in another a barrel sleeve that formerly was carved out of a solid piece of steel now is made from piping; in still another the barrel is machined down by a group of cutting tools that bite as much as a quarter of an inch deep as the barrel revolves.

Bofors Guns in Mass Production

By David J. Wilkie
(Wide World)

A little more than a year ago K. T. Keller, president of Chrysler Corporation, was asked whether he could make Bofors 40mm antiaircraft cannon.

Mr. Keller probably never had examined a Bofors, but he "thought" it could be made in the Chrysler plants that formerly turned out automobiles.

Under his direction two of the big "Ack-Acks" were made for trial purposes; it took something like six weeks to assemble the pilot models. Today these cannon, described by Army and Navy officers as among the most effective weapons yet devised against dive bombers and other aerial attackers, are being shipped out of the Chrysler plants by the carload every day.

The funnel-mouthed Bofors, originally called an "automatic field gun," was in production by Bofors in Sweden about the time of the Spanish-American War.

Four New Nazi Planes

By Wes Gallagher

(Associated Press War Correspondent in London)

Qualified British observers said today that the appearance of four new German high-performance war planes on the world's battle fronts in the last few weeks indicated that Reichsmarshal Goering had achieved a major retooling "swap over" in the German aircraft industry.

They said the use of the new model fighters and bombers in battle showed that they were in mass production despite the opinions expressed by some air experts that the Germans would be unable to make major changes in models during the heat of the Russian campaign.

The latest German fighter was reported by the Russians recently to have made its appearance in action on the Russian front. It is the Messerschmitt 109-G, de-

scribed as a high-altitude, partly armored plane with a liquid-cooled 1,700 horsepower engine.

Experts here said such a plane would be a formidable addition to the Luftwaffe's vaunted Focke-Wulf 190, already reported followed up by an improved model.

[*Red Star*, the Russian Army newspaper, said the ME-109-G, although armed with three cannon and two machine guns, lacked the speed of earlier model Messerschmitts. The newspaper said the 109-G would do 250 miles an hour at 3,000 feet and 325 at 12,000 feet.]

It has been confirmed officially that the Germans have used a new Heinkel 177 four-motored, two-propellered heavy bomber over Britain recently.

Unofficial sources have reported the appearance, also, of a pressure-cabined Junker 86-P bomber-reconnaissance plane with a ceiling above 40,000 feet.

Regarded as a significant feature common to the JU-86-P, the new FW-190 and the ME-109-G was the fact that they all were reported capable of operating above 35,000 feet—out of antiaircraft range.

Sources here said the Heinkel 177 can operate at about 23,000 feet on bombing missions, and that this was about the height from which the Flying Fortresses of the United States Army Air Force bombed German-held territory in Europe successfully by daylight.

The Heinkel 177 is equipped to carry the heaviest load of any German bomber ever to fly over Britain, indicating the Germans are copying the big bomb-carrying trend in the RAF while following the American lead in sub-stratosphere operation.

While frequent bad weather over Britain limits the use of such extreme high altitude bombers, which must have clear weather to operate, their extreme operational height makes interception by fighters difficult. It takes approximately fifteen minutes for a fighter to climb to 40,000 feet, by which time the bomber can be some sixty miles away.

Colonel Lockhart Leaves

Colonel Leslie K. Lockhart, of the British Royal Artillery, who was in this country for some time giving us the benefit of his experience in Britain and of his knowledge of modern antiaircraft developments abroad, has now returned to London. He desires to express his appreciation to the personnel of the Coast Artillery Corps for the welcome given him throughout the United States and its outlying fortified areas. Those of us who knew him here will hope to see him again "over there."



Jap 3-inch AA gun captured by U. S. Marines at Guadalcanal.

Marine Corps Photo

Officer Strength Revealed

In an address delivered at the graduation exercises of the Engineer Officer Candidate School on September 30, Lieutenant General Lesley J. McNair, Commanding General, Army Ground Forces, revealed that on that date there were more than 200,000 officers in the army.

800,000 Soldiers Abroad

(Special to the *New York Times*)

Forces of the American Army overseas, with 300,000 soldiers sent abroad in the last two months, now total about 800,000 men.

This became known as the Navy made public recently a Navy Day letter from General George C. Marshall, Army Chief of Staff, to Admiral Ernest J. King, Commander-in-Chief of the United States Fleet, expressing the thanks of soldiers for "the skillful seamanship that has escorted 800,000 of them safely across the submarine-infested waters of the Atlantic and Pacific."

John J. McCloy, Assistant Secretary of War, said in a speech at Cincinnati on September 2 that our overseas forces then totaled more than 500,000 men.

There was no indication of the disposition of the 800,000 now abroad, but it was known that a large number of them were in Northern Ireland or the United Kingdom awaiting an opportunity to engage in offensive operations against Germany.

Officer Candidate Schools

There are now eighteen Officer Candidate Schools, with a total of seventy widely distributed branches. Following is a complete list of the schools:

- Adjutant General
- Antiaircraft Artillery
- Armored Force
- Army Administration
- Army Air Forces:
 - (Administrative
 - Statistical
 - Physical Training)
- Cavalry
- Chemical Warfare Service
- Coast Artillery
- Engineer
- Field Artillery
- Finance
- Infantry
- Medical Administrative
- Military Police
- Ordnance
- Quartermaster
- Signal
- Tank Destroyer

The schools in which the greatest number of openings exist at the present time are the Engineer, Antiaircraft Artillery, Field Artillery, Coast Artillery, and Tank Destroyer Officer Candidate Schools.

Recent reports on more than 20,000 Officer Candidates show that 34.45 per cent were college graduates; 34.72 per cent had had some college training; 24.35 per cent were high-school graduates; and 6.48 per cent were not high-school graduates.

There are no inflexible rules as to the educational background required for appointment to Officer Candidate Schools. Obviously, the technical branches require more academic training than the nontechnical ones.

Selected applicants belonging to units about to go overseas will not accompany their units, but will be sent to the schools. Those whose applications have been approved but who have not yet been assigned to Schools may also, at the discretion of their Commanders, be left behind.

The Officer Candidate system also makes provision for the man who has been sent overseas. In some cases, commanders of overseas garrisons are authorized to conduct their own Officer Candidate Schools.

An applicant for an Officer Candidate School must be a citizen of the United States, of the Philippine Islands, or of another co-belligerent or friendly country. He must have reached his eighteenth birthday, and not have passed his forty-sixth birthday on the date of completion of the course for which he has been selected—except that in the case of the Army Administration Officer Candidate School men up to the age of fifty are eligible. Men who have been accepted for limited service only—those formerly classified as I-B under Selective Service—are also eligible for this school. Volunteer Officer Candidates, and men in combat branches who are under thirty-five years of age, are not accepted for the Army Administration Officer Candidate School.

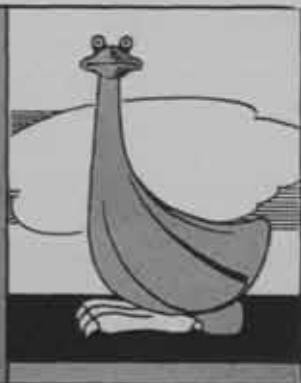
In general, officer candidates must be able to pass the physical examination prescribed for commissioned officers. The requirements as to height and teeth are now the same as for an enlisted man. Applicants whose visual acuity is below 20/200 in each eye without glasses if correctible to 20/40 in each eye, and who are otherwise qualified, will be eligible for commission for duty with the Medical Administrative Corps, the Quartermaster Corps, the Finance Department, the Ordnance Department, the Chemical Warfare Service, the Adjutant General's Department, Army Air Forces Administrative Installations, Engineers, and Signal Corps.

Where minor disqualifying defects are revealed by the physical examination, Commanding Generals may grant waivers, or delegate authority to grant the waivers.

A further eligibility requirement is that the candidate must have achieved a score of 110 or better in his General Classification Test. Where they feel that such action is warranted, commanding officers may grant permission to take this test a second time.



Coast Artillery Activities



Bermuda Base Command

By Captain George E. Myers

Now that the war has focused the attention of more and more Americans upon our newly acquired island defense bases in the Atlantic, it often comes as a shock to many people to find that Bermuda has already played important rôles in the history of our nation. Nine out of ten people in the States regard Bermuda as an island playground for the vacationist. That the island and its people have played vital rôles in our nation's history long before the war caused us to secure our Lend-Lease bases here is a historical fact often overlooked.

In early colonial days, Bermuda was closely connected with the American colonies and trade flourished. Since the island was much closer to the American continent than to the mother country, the ties between the two were naturally quite strong. It is not surprising, therefore, that Bermuda was strongly sympathetic to the cause of the American colonies when events were leading up to the Revolutionary War in the late 1700's. The trade carried on and the support given the American colonies by Bermudians was strong evidence of this fact. And history records that several hundred pounds of gun powder stolen from one of His Majesty's forts in Bermuda and shipped by Bermudians to George Washington's army was responsible for our first really significant victory of the War for Independence—the driving of the British troops out of Boston. General Washington himself wrote a letter, now on display in the Bermuda Historical Society in Hamilton, expressing for himself and his countrymen the deep gratitude felt for this friendly act, and promising friendship and commercial reciprocation in the near future. Throughout our Revolutionary War the Bermudians continued to evidence their interest in our cause.

Years later in our own War Between the States, the people of Bermuda through their commercial relations played another important rôle in our history, though their sympathies and acts were largely with the Confederacy.

World War I followed by the days of the tourist, brought Bermuda into closer ties with America and Americans than with England in many ways.

It is not unnatural, therefore, that the Bermudians should feel and have a close relationship with our country. The war has heightened this need for close bonds—and it has focused attention upon the necessity of co-operation between the two governments.

It was not easy for Bermuda to see many of her customs and habits ruthlessly changed by the necessities of war; it was not easy for Bermudians to give up homes, as was necessary in many instances, to make way for a military base for a foreign nation; it was not easy, for instance, for Bermudians to see their island paradise invaded by the motor vehicle after they had tenaciously clung to the peace and quaintness of horse and buggy and bicycle. But the war brought the necessity—and the changes were made. It is a tribute to the people of the island and to the American leaders sent here like Admiral James, U. S. Navy, General Strong, U. S. Army, and Colonel White of the U. S. Engineers, that the necessary adjustments were made so harmoniously and coöperatively. The attitude may best be summed up in the words of Sir Stanley Spurling, prominent Bermudian: "I am thoroughly convinced that your government must have hand-picked the leaders it sent down here, for they have certainly won the coöperation and respect of all."

That in brief, is the story of Bermuda-United States relations from colonial days down through the present.

But the war, and the American Bases here which are a result of the war, have brought changes to the island—changes which more than likely will remain. Take the motor vehicle—except for a few Public Works Department trucks, Bermuda highways were devoid of them. The base contractors brought in their trucks and other vehicles, then the Army and Navy brought in more and more as the bases were manned by increasing numbers of troops. Today, several hundred motor vehicles "speed" over narrow, white coral roadways of the island at fifteen miles per hour. It's true that some of the local people are still worried about the exhaust from the motors damaging their health—some still cover their



Two scenes from old Fort Victoria, in Bermuda.

noses with handkerchiefs to protect themselves from the fumes—but now the argument is about fifty-fifty as to whether Bermuda will ever return to her colorful but backward "horse and buggy" days.

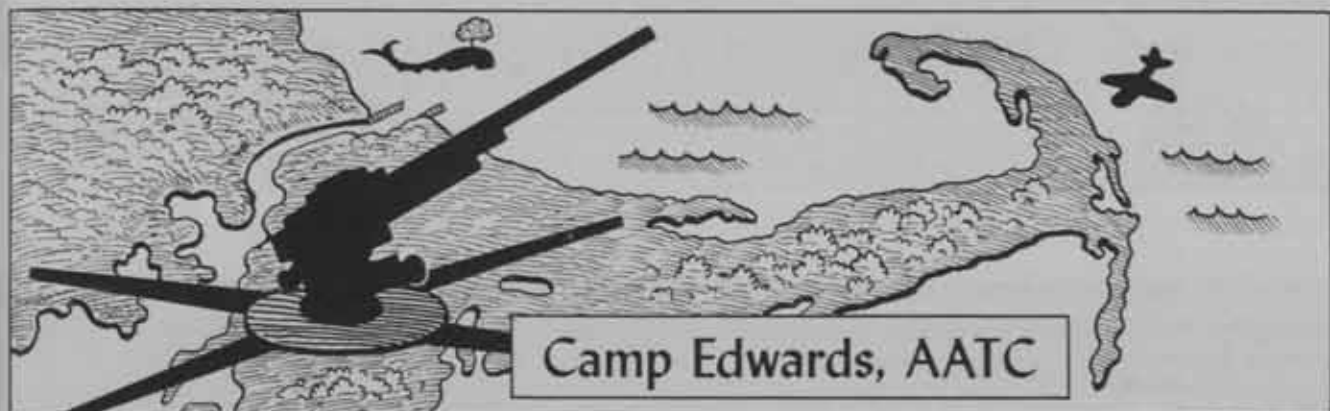
Some of the very charm that attracted the peacetime tourist to Bermuda is the very thing that the average soldier gets most disgruntled about. With carriage hire very expensive and their use restricted by shortage of forage for horses, with gas rationing curtailing train schedules, the American soldiers imbued with the "hurry up, let's get it done" spirit common to the United States, find some cause for griping. But the men still go places—to the huge United Services Club in Hamilton which occupies the entire former Hamilton Hotel, to the USO in Flatts Village and the USC in St. George's, to the famed beaches, the resort hotels, and recreation areas. "Dates" are scarce—the G.I. dance that can boast a girl for every three men is bound to be unusual. But a tourist playground like Bermuda still

has much to offer the service man in his limited leisure time.

A Base Command Band that arrived a few weeks ago is being put to good use by the Commanding General to take entertainment to outposts and isolated positions. The band goes out to the various outposts to play concerts on a schedule that fills almost every day of the band's time—and do the men like it! At one isolated gun position, the men were on a practice alert when the band arrived. Undaunted, the bandsmen set up alongside the gun position and serenaded the lonely Coast Artillerymen with *The Caisson Song*, *Beer Barrel Polka*, and other good old tunes of home. Here in Bermuda Base Command, music not only has charms to sooth—but it builds morale.

That is if we need to build morale here. Men who are on the alert and ready, prepared for whatever the enemy may offer, seldom need morale builders. They already have it!





BRIGADIER GENERAL MORRIS C. HANDWERK, *Commanding*

By Lieutenant L. L. Capron

This first direct report to JOURNAL readers from the teeming antiaircraft center on Cape Cod may well be a source of satisfaction to all. With last summer's tremendous job of preparatory organization and training over, we find a booming training center established that is rapidly becoming a dominant factor in this camp's varied activities.

Every day now the thud of Coast Artillery guns sets the beat of life through the sprawling acres of the reservation; every night clusters of Coast Artillery searchlights sweep the sky. An event of this initial period was the elevation of Colonel Morris C. Handwerk, Commanding officer of the AATC to the rank of Brigadier General.

Enlisted men and officers alike are being drilled and schooled unceasingly to weld first-class fighting units in the shortest possible time. Already the results are apparent. Hard work is accepted as a duty and a pleasure; officers without exception carrying the regular burden of hours of evening study to ten P.M. as standard practice after the end of scheduled training at eight. Perhaps the best example of the toughening process developed for artillerymen here is the Edwards' obstacle course, one of the most difficult in any camp. Fourteen of the most physically exacting obstacles that Camp Engineers could devise, each built to accommodate a minimum of four men simultaneously spread over 1542 feet of rough terrain. An average of 1000 run the course daily, showing unflagging zest for conquering its hazards and scaling the final wall within the three and one-half minutes' qualification time.

Not enough can be said for the eagerness and spirit of the enlisted cadremen supplied by replacement centers and line outfits alike. Concerned with learning their jobs as well as and as fast as possible, they represent a problem of restraint in their ambition to complete the training program. The type is best exemplified by the new man who, with five months' service behind him, appeared in the office of the writer today with a request to be transferred to any organization that would next be going into action. Orientation lectures on current history and the events leading up to America's position in the war are being used to impress on men of

this type the necessity for thorough "know how" before meeting a seasoned enemy. These are proving successful in sustaining a clear understanding among the men of the necessity for the exhaustive training schedule.

Intensive training begins immediately upon activation. In the weeks between that time and the arrival of filler replacements, both officers and enlisted cadremen crystallize, by battery, by battalion, by regiment, into competent directors for the repetition of the program that follows.

In the welter of work that becomes a habit, Camp Edwards' location in the center of Cape Cod has been a godsend to men of the AA command with their necessarily short hours off duty. Despite a transportation problem aggravated by the gasoline and rubber shortage, the Cape's playgrounds lie within easy striking distance all around the camp, and during the summer and fall the Cape Cod soldiers have made the most of them. Hyannis, Falmouth, Sandwich, and the other famous beaches and communities of the Cape afford endless opportunities for the best kinds of recreation. Both the USO and the citizens of Cape Cod deserve hearty thanks from Camp Edwards for the excellent manner in which the whole district has been devoted to the soldiers' fun and welfare during the months just past.

Within the camp itself recreation flourishes. The spacious Service Club entertains thousands with its frequent dances and good food. An excellent library offers a wealth of fiction, history, and technical material. The vast Arena centers the athletic activities of the camp, highlighting its organized sports with visits of university and big-league baseball teams during the summer, followed by top-notch football, basketball, and boxing shows as the season progresses. In addition to four conveniently located theaters, a newly completed outdoor amphitheater seating 4000 and featuring first-class revues and road shows brightens Summer and Indian Summer evenings under the stars.

Camp Edwards' AATC has arrived. Anyone in New England can see it. The red braid of Artillerymen is the local mark of tanned, trained, fit-looking soldiers—proud of their units, their camp, and their Corps.

Corregidor



I SHALL RETURN!

MACARTHUR

Filipino Leaders Speak:

Major General Basilio Valdes, to the Veterans of Foreign Wars at Cincinnati, August 31:

"Much has been said and written about the magnificent stand made by the combined forces of the American and Philippine Armies in Luzon, Bataan, and Corregidor. I saw those boys fight and I can assure you that they deserve fully every bit of praise that has been given them.

* * * *

"The Filipino is inherently a good soldier. He is used to hardships, he is well disciplined, he has moral courage and he is accustomed to taking orders. In his native terrain he can outmarch and outmaneuver any alien soldier.

* * * *

"We prepared and trained our army in peace that it might show its worth in war. Due to limited funds at our disposal we were not able to acquire before the war began the equipment we would have liked. However, our soldiers had indomitable spirit. They were ready to shed their last drop of blood, not only to protect what was dear to them—their homes and families—but also to uphold the dignity and honor of the American people and the American flag.

"The Filipinos saw clearly that their freedom and their future welfare depended upon a United Nations victory. To assure that victory they stood shoulder to shoulder with their one-time conquerors against the common enemy. Their unique record of Luzon, Bataan, and Corregidor shows how a just and efficient colonial administration can gain the love and respect of the vanquished. We may have lost that round, but I can assure you that in the heart of every Filipino is deeply rooted an undying faith in the United States, and an imperishable love for the American people and the American flag."

The Hon. J. M. Elizalde, Resident Commissioner of the Philippines, to the Filipino Unit of the United States Army at Camp San Luis Obispo, October 15:

"The Filipino Unit of the United States Army represents much more than just another regiment in the army. To us it is the symbol of revenge, the continuation of the glorious and heroic spirit of Bataan. It is proof that the spirit of our brothers at home burns also in the heart of the Filipino here.

* * * *

"That is the spirit behind the Filipino Unit. That is the incentive to fight to the last drop of our blood. Our boys here have the same great spirit the boys in Bataan did—because they are the same boys with the same souls and the same hearts."

Newfoundland

By Major Robert J. Wood

Increased submarine activity in the North Atlantic has given Coast Artillery gunners in Newfoundland added incentive to stand by their pieces and hope for a target which will be large enough to appear in their sights. However, the very nature of submarine tactics has so far prevented these undersca wolves from showing themselves to those most anxious to see them. Their purpose is served much better by remaining out of range of the fixed defenses. They prefer to prowl in the uninhabited bays and inlets and to appear on the surface only when the night is dark or when they are certain only an unarmed vessel is about.

Such a vessel was the *Caribou*, the Nova Scotia-Newfoundland railway ferry sunk with a loss of nearly half its crew and passengers early one morning as it came in sight of the Newfoundland coast, after crossing Cabot Strait. Hit by a torpedo amidship, the ship had little chance of survival and sank within five minutes, carrying over 100 of those aboard—mostly civilians—to their watery graves.

The act was well in keeping with others of the enemy in all parts of the world and served to draw together even more the soldiers and sailors of the Allied Nations stationed in Newfoundland in their firm resolve to avenge every such act before this conflict is over.

In line with encouraging that spirit of unity among the United Nations which is essential to united success, personnel on duty in Newfoundland have recently sponsored a series of "exchange dinners." At several points on the island where American and Canadian, or British or Newfoundland units are stationed near each other, these affairs have proved to be an excellent method of getting together and reviewing the combined maneuvers recently held, as well as learning more about the individuals who comprise our allied armed forces, their experiences, their home life, their aspirations.

The first of these parties grew out of an idea brought forward by a group of soldiers to entertain some members of the crew of a British man-of-war which was in a Newfoundland harbor after particularly gruelling convoy duty. The thought met with official approval and the sailors were invited ashore for an American meal and a tour of the post. Naturally, a few days later they reciprocated in kind, and a group of soldiers inspected a war vessel from stem to stern, had dinner, and learned much about the Royal Navy and its men.

The idea has been carried out with men of other nations having personnel in Newfoundland. Noncommissioned Officers' Clubs have been particularly active. Not the least that soldiers have exchanged are native songs. Some U. S. troops can now give fair renditions of *The Star of Logy Bay* and the humorous *Squid Jiggin' Ground*. At some Coast Artillery post years hence there will be officers and soldiers capable of rendering these folk songs. Newfoundland continues to be a stopping

place for notables from all countries. The British Secretary for the Dominions, the Hon. Clement Atlee, recently visited Newfoundland and inspected Army posts. Various high ranking officers of the Allied armed forces and officials of their governments have also made this country at least an overnight visit. The feeling persists that after the War, Newfoundland will be a natural stepping stone between the North American continent and Europe.

Just now, among the most welcome visitors continue to be the traveling USO Camp Shows, which pay regular visits to all the posts on the island. The most recent one had as its star Joan Blondell, who has been spending the past year doing her bit at the camps and stations of the Army. While in Newfoundland, she not only visited all the posts, but the outposts and alert garrisons, base end stations and, in fact, every location, isolated or not, at which there was an American soldier. Nor did she hesitate to have her troupe give a performance for allied soldiers and capped the visit by participating in a broadcast over a Newfoundland radio station.

Coast Artillerymen had occasion to be proud when one of their number, Private Andrew Shestock, of Buffalo, New York, was awarded the Soldier's Medal for rescuing a Newfoundland civilian, Mr. Patrick Judge, from drowning. The medal was presented at a formal review held in his honor, by Lieutenant Colonel Edward E. Reid. The troops were commended at the review by Lieutenant Colonel Thomas L. Waters.

The citation which accompanied the medal presented Private Shestock read as follows:

"With utter disregard of his personal life and safety, he plunged into the icy waters of Placentia Rapids and, with great difficulty, succeeded in holding a drowning man above the swirling waters until aid arrived. This occurred during complete darkness, making the task even more difficult."

Private Shestock was absolutely modest in accepting the award, and to newspaper men afterwards, stated that it was something that anybody would have done, and he didn't feel too brave for having jumped in the water. The fact remains, however, that *there were* others present and he was the only one who was a real enough hero to jump in and save the man who had fallen in and who would surely have been swept to his death without help.

When this is published, winter will have descended upon Newfoundland, the third winter for the men of the original contingent. Each passing month has seen their state of training increase and their armament placed in better shape to shoot any enemy target which comes within range. "The stopper to the bottle" which is the St. Lawrence waterway will give a good account of itself should action come its way.



The Coast Artillery School

BRIGADIER GENERAL L. B. WEEKS, Commandant

The Coast Artillery School is busier than ever with the extensive scholastic schedules and activities that have been formulated to take care of the higher education of the rapidly expanding Coast Artillery Corps.

The School Staff and Faculty has again been augmented by officers as instructors in the various departments.

One group graduated from the Battery Officers' Course recently and received their certificates of proficiency from Colonel Clem O. Gunn in appropriate exercises at Murray Hall. Immediately following the graduation, the next group started the newly lengthened course of ten weeks. The study of automatic weapons, field artillery including tactics, and motor transportation have been added to the curriculum.

Among the latter group are two officers from the Chilean Navy: Lieutenant (sg) Sidney Harris-Halley and Lieutenant (jg) Oscar Villegas. The presence of South American officers on the Post for each group lends an international flavor to much of the discussions, both in the classrooms at Murray Hall and those old-fashioned "bull sessions" back in the barracks up the beach road.

During the recent absence of Brigadier General L. B. Weeks, Colonel Clem O. Gunn was the Acting Commandant and Lieutenant Colonel N. E. Borden was the Acting Secretary in place of the Secretary, Colonel H. F. Meyers, who accompanied the General as observer during the maneuvers in Louisiana.

The Coast Artillery School has released for distribution to the field four Coast Artillery Training Bulletins entitled:

1. *General Information on Training Bulletins, Field Manual 21-6, and Visual Aids*
2. *The Lateral Adjustment of Fire*

3. *The Choice of Site and Installation of Special Equipment*

4. *Intelligence Summary No. 1*

Other bulletins scheduled for preparation and dissemination to the troops in the field shortly are:

Notes on Training

Lubrication of Coast Artillery Matériel

Index to Coast Artillery Publications

Identification of Merchant Vessels

Instruction Guide on Fire Control and Position Finding

Identification and Uses of Enemy Small Craft

A further list of proposed bulletins will be included in the next issue of the JOURNAL.

These bulletins will be issued from time to time as rapidly as material of general interest to Seacoast Artillery can be assembled and edited. These bulletins are prepared principally for the Coast Artillery Corps but occasionally they will contain instructional matter of interest to other arms and services.

As an additional aid to troops in the field, the Coast Artillery School maintains an Information Service which will endeavor to answer any questions on tactics and technique from Seacoast Artillery troops. No Seacoast Artilleryman should feel that his problem is too small to bring to the attention of the Information Service. No query will go without specific consideration and a prompt answer. All such communications should be addressed to: Information Service, Department of Training Publications, The Coast Artillery School, Fort Monroe, Virginia.

The actual photographic work has been finished on two more parts of the training film on the twelve-inch gun, barbette carriage. These are *Checks of the Base Ring and Range Disk* and *Checks for Pointing in Direction*. However, it will be some time before the films

will be available for general distribution to the field.

At the present time there is a Signal Corps Photographic Unit under the direction of Lieutenant H. Schopp working in conjunction with the Submarine Mine Depot and one of the mine planters. The movies are being taken for a future film bulletin and subsequent training film on mine planting.

The Enlisted Specialists Department has held graduations for several classes in the following courses, with Colonel Clem O. Gunn presenting their diplomas. Three groups of the Electrical Course graduated recently and a Master Gunner Class received certificates on October 5. A group of radio students finished and returned to their home stations in October. The Automotive Class also finished at the same time. There have been several classes finishing the Special Equipment Courses, also.

The officers of the Staff and Faculty of the School

have organized a Bowling League and the inter-departmental spirit of rivalry is growing keener at every match. The team representing the Officer Candidate School is the apparent winner of the first quarter of team play. Captain C. J. C. Schmidt and Captain Paul S. Button are the bowlers sporting the highest averages with several more officers close behind them pressing them for top honors.

The Officer Candidate School, which is now under the command of Lieutenant Colonel Jason Jennings, has held three graduations in recent weeks, with the candidates of Batteries E, F, and A receiving their commissions.

The recently completed training film on *Fire Control and Position Finding for Seacoast Artillery* should by this time be in every harbor defense post. The complete list of films under this heading was published in the last issue of the JOURNAL on page 106.



Southern California Sector

Sporting events highlighted extra-curricular activities at Fort Rosecrans during the past two months, with baseball and boxing keeping the Coast Artillery boys entertained in off hours.

The post baseball team, known as *The Cannoneers*, nabbed the San Diego County League pennant for the second consecutive year, by winning eight games and losing none. Competition included the Camp Callan team.

Regular Friday evening boxing cards began with the dedication of an outdoor arena on the Lower Parade Ground, August 21. Several first sergeants organized their own stables, with the result that inter-battery competition is keen. A fight for the heavyweight championship of Fort Rosecrans, between Sergeant Gashouse George Lester and Sergeant Smoky Underwood, aroused more local interest than a Joe Louis bout. Both men claimed carnival experience. Underwood won.

During the year since its activation the Regimental Band has earned public acclaim with performances in San Diego and Oceanside. On August 25 it celebrated its first birthday with its most elaborate post concert. Featuring the program was the post's own *Coast Artillery March*, written by the band leader, Warrant Officer Semer.

The *Cannon Report*, weekly post newspaper, published its first serial, a true and revealing account of what the men think of their food. Neither mess sergeants nor battery commanders were spared, though on the whole the reporters concluded that Army chow was superior to anything that money can buy on the outside. Each mess had its weakness, each its specialty. Consensus was that monotony of surroundings rather than

food was cause of most kicks. The series ran for three weeks.

The USO's Camp Shows summertime circuit stopped over August 28 to offer its *Hunky Dory Revue*, a musical show slightly fast in spots, that satisfied the customers.

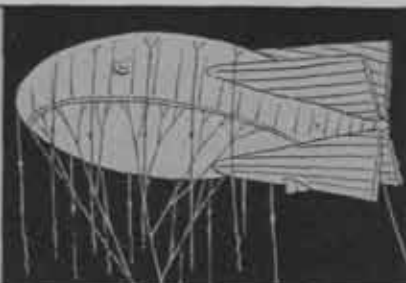
At the suggestion of the commanding officer, Colonel P. H. Ottosen, a tribute to the officers and men who went from Fort Rosecrans to Pacific theaters of war prior to December 7, 1941, was placed in the chapel. Captain De Von Ellsworth, senior chaplain, phrased the memorial, and Corporal Gordon H. Gray executed it on parchment.

A room in the lower theater building, once known as "The Dungeon" because of its bare and cold atmosphere, has been remodeled, furnished in Monterey style by the Red Cross, and dedicated as a new recreation hall September 20. The San Diego Fine Arts Gallery loaned a number of reproductions of famous paintings for the walls of this room. The opening ceremonies featured the presentation of an oil portrait of General Rosecrans, the Civil War fighter for whom this post is named. Private Robert Brown of the Medical Detachment painted the large portrait, using for models engravings in old history books.

How To Walk 100 Miles in Three Hours was the subject of a collection of tips to highwaymen in *The Cannon Report* September 18. Reason was the growing transportation problem between here and Los Angeles. The article clearly stated that thumbing was out, but mentioned that the Army had no objection to a man resembling an efficient soldier and looking wistful. Outlined were things to do and things not to do when hitting the highways.



Camp Tyson



BRIGADIER GENERAL JOHN B. MAYNARD, *Commanding*
Barrage Balloon Training Center
By Lieutenant F. R. Alexander

Camp Tyson, located near Paris, Tennessee, is hardly a year old, but it is already in the throes of expansion.

More than 4,300 additional acres have been purchased and added to the original camp. Plans have been drawn and construction has been started on approximately one hundred new balloon sites to be added to our present number now being operated by Camp Tyson units.

Some 250 additional barracks are in the process of construction in an area near the main entrance, and with both officers and enlisted men being received in quantity, the camp is in full activity.

Major General J. A. Green, Commanding General of the AA Command, and Brigadier General Raymond Fowler, Chief of the AA Equipment Section, Supply Division, Office of the Chief of Engineers, came to Camp Tyson the latter part of September to confer with Brigadier General John B. Maynard, Commanding General, on problems of supply of barrage balloon matériel. While here, they made a thorough inspection of the camp and barrage balloon activities.

A new training film is in production which will feature the handling and operation of low-altitude balloons. It will be in seven reels and an especially trained



Training film in preparation.

balloon crew is being used in depicting the various phases of balloon crew drill, maintenance, and operation. The film was authorized by the Army Ground Forces, and is being supervised by Lieutenant Colonel William H. Kendall, Plans and Training Officer for Camp Tyson.

New students in the Barrage Balloon School are finding the texts more complete and up to date. A tremendous amount of work has been done by the Publications Section of the Barrage Balloon School, headed by Lieutenant Colonel Douglass G. Pamplin. His staff is correcting and editing this material, much of which is so recent and new that it is still in mimeographed form.

The largest class of student officers in the history of Camp Tyson was recently graduated. Colonel Parry W. Lewis, Commandant of the School, presented the class to General Maynard who conferred the graduation certificates. Four training batteries of enlisted men are now going through the Enlisted Course, and the twelfth class of officers started October 26.

A number of officers, graduates of the Barrage Balloon School, are returning from the field for refresher courses, particularly in handling and maneuvering the British type balloons which are now being supplied in numbers. Experimental work is also being done with the small, very low-altitude balloons, a number of which are now appearing on the post.

Something new is being tried in operating the pool of officers who are graduated from the Barrage Balloon School. Instead of attaching them to battalions already activated, they are placed in an Officers' Training Unit, where all officers, regardless of rank, receive the basic training subjects that they will later teach to enlisted men. Their habitual uniform is fatigue clothes, they run the obstacle course, fire all weapons, must qualify as motor vehicle drivers, actually maintain, lubricate, and service their motor vehicles, and go through a more

rigorous hardening course than is given to enlisted men. They rotate in, and actually perform, the duties of Motor Sergeant, Supply Sergeant, First Sergeant, Platoon Sergeant, etc., and learn the drill as enlisted men. They qualified 88% on the rifle range. Demands from the field, from activated battalions, or other branches of the Coast Artillery, seeking replacement officers or officers of special qualifications, are supplied from this training unit where possible. The Officers' Training Unit is in charge of Lieutenant Colonel Kenneth J. Woodbury.

In athletics, Camp Tyson has more than held its own; the Camp Tyson baseball team finished a perfect season with eight straight victories scored over the strongest teams in this part of Tennessee.

The quality of the enlisted men received at Camp Tyson is indicated by the fact that forty privates and noncommissioned officers received Good Conduct Medals as a result of three years of service marked by exemplary behavior, efficiency, and fidelity. A ceremonial parade and review was held recently at which these men received their ribbons. The presentations were made by the Commanding General.

The latter part of October, a group of officers attended the Antiaircraft Staff Officers' Course of the Fighter Command School at Orlando, Florida, where they had a most instructive week's course about liaison with the Fighter Command, and profited very materially by the mutual understanding of control problems of various units cooperating in defense against bombardment aviation. The officers selected to attend this course were the Battalion Commanders and key officers of the Barrage Balloon School and the Barrage Balloon Board, with Lieutenant Colonel William H. Kendall, Plans and Training Officer of the Barrage Balloon Training Center in charge.



Can we honestly go to sleep at night lulled by the capture of a stretch of African coast or a hold on a Pacific Island? Can we put our feet up contentedly or wrangle among ourselves because we've struggled back over a few feet of the long miles that lie ahead?—
LIEUTENANT GENERAL BREHON B. SOMERVELL.



Camp Wallace

BRIGADIER GENERAL E. A. STOCKTON, JR., *Commanding AARTC*

Many changes have been made in the physical equipment at Camp Wallace. A new Sales Commissary has just been opened in the Quartermaster Area, and a Signal Corps Photographic Laboratory has recently been completed and is in operation. At present, construction is under way on a building for the Master Gunner, two Training Shops, five school buildings, and dormitories for civilian employees.

A rainy morning did not dampen the Camp Wallace activities on Labor Day. Approximately 1,200 men participated in a parade at Houston which was part of a program to encourage the sale of War Bonds. General Stockton, the Commanding General of Camp Wallace,

acted as Grand Marshal for this parade. Camp Wallace also entertained several thousand civilian guests during the day. Open house was held and guides were furnished to escort civilians through the camp and demonstrate the various training phases. The climax of the day's activities at Camp Wallace was a brigade review witnessed by several thousand civilians from towns in the vicinity of Camp Wallace.

The Camp Wallace Band and several pieces of motorized equipment participated in a War Bond rally on September 19, in which \$110,000 worth of War Bonds were sold.

Since the last JOURNAL went to press, the Automatic



Camp Wallace participates in a Labor Day War Bond parade at Houston.

Weapons batteries of Camp Wallace have received 40mm matériel. In one of the early target practices fired with the 40mm guns, Battery A of one of our training battalions fired a target practice which has given the rest of the camp something to aim at. No mention can be made of the percentage of hits obtained, but it is no secret that four targets were destroyed that afternoon, and the practice was interrupted because the plane had to return to its base for more targets.

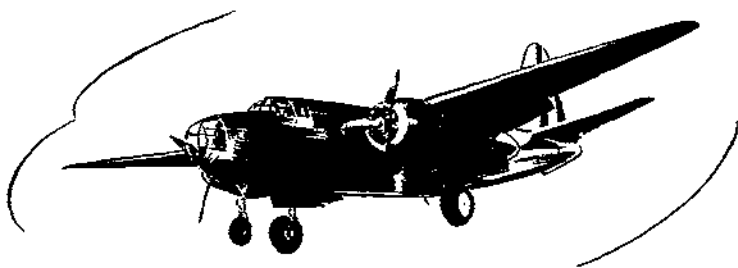
A program of physical training has recently been initiated which has as its primary purpose the building up of men who are physically below par. Climbing ropes, parallel bars, horizontal bars, and jumping pits, the first three constructed by the Training Aid Shop, have been erected in every battalion. Regular classes exercise daily on this equipment. Overhead ladder obstacles have been added to all of the obstacle courses in the camp. Two sets of bayonet dummies have been erected in each battalion area to enable trainees to practice bayonet training at their leisure.

The Provisional AA Regiment recently activated at Camp Wallace, under the command of Colonel Nairn, recently conducted a review of the regiment and its motorized equipment. A problem in the defense of the Camp Wallace area, conducted October 26, 1942, also afforded the Provisional Regiment an opportunity to take to the field, and gave the trainees a taste of field training in the opportunity to emplace guns, camouflage

their positions, set up communication lines, etc., simulating battle conditions. Radio-equipped reconnaissance cars provided a very flexible means of communication between the Regimental Headquarters and each Battalion Headquarters.

A Searchlight Target Practice, conducted by Batteries A and B, of a Searchlight Training Battalion, proved to be a fitting climax to the eight-week training period. Pickups were made in times which would have done credit to regular Army units, in spite of a weather handicap.

Camp Wallace just completed a very successful War Bond Week. Features of this drive to encourage all military personnel and civilian employees to make pay reservations for the purchase of War Bonds, were a War Bond Dance, a radio program which was relayed over the camp public address system, a musical show, *Wackies in Khaki*, a letter from the Commanding General to all trainees in camp, and a fifteen-minute talk by each of the various unit commanders. The results of the drive were most gratifying. Approximately 3,000 new pay reservations were obtained, and 1,500 men who had previously authorized pay reservations, increased the amount; 92½% of all officers, Army Nurses, enlisted men, and civilian employees at Camp Wallace have authorized a pay reservation, and, as a result, \$55,000 worth of bonds are being purchased each month by the personnel now at Camp Wallace.



Camp



Haan

BRIGADIER GENERAL JAMES R. TOWNSEND, *Commanding AATC*

By Lieutenant Harry B. Berman

Working in cooperation with March Field, a group of officers from the training center witnessed an unusual and simplified demonstration of camouflage procedure, which utilized several new techniques. An effective disguise of a 40mm gun was accomplished through the simple means of pivoting a protective cover on a two-by-four which was placed inside a pipe driven into the ground. The end of the cover was supported by a wire from the top of the two-by-four. A machine-gun pit was camouflaged by a hinged door device which could be flung completely out of the way instantly. Subsequent rain did not diminish the effectiveness of the camouflage materials. The entire demonstration will be moved later to Camp Haan for observation and study.

Gasoline rationing has reached deep into the habits of soldiering. Former sights during the gasoline era of a jeep for every officer, a staff car for every errand, and a reason for every ride have vanished stealthily into the past. Now the bicycle, formerly plaything of the plump, has become steed and servant of the officers, and perspiring majors pump their way about the post, with naught but grin and grit to propel them. This has raised the unanswered question among officers and enlisted men alike as to saluting regulations when your superior is mounted on a bicycle. Can custom and courtesy survive in this medium?

The story of the making of a news-reel item was brought home to Camp Haan men as they became the subjects of the cameras' eyes. Before a battery of photographers and intricate equipment, regiments and battalions went through a series of battle tactics, road marches, and firing for two complete days, demonstrating the technique of going in and out of battle formation, loading and unloading vehicles and a varied assortment of antiaircraft maneuvers. The result on film of this action lasts a total of three minutes. Now the fear of the cutting room floor can be appreciated.

Commencing October 25, the new dimout regulations went into effect which apply to all towns and other places of concentrated electrical power within 100 miles of the coast. This regulation has affected

Camp Haan, and night brings now the shading of all lights which reflect their glare upwards, and the lowering of all window shades to at least half the window's length. The effect of such action will be to reduce the amount of sky glare visible from the ocean and consequently lessen the vulnerability of harbor bound boats from shelling by submarines or other ocean craft. It will also make it more difficult for enemy vessels to determine their exact location.

The antiaircraft and antimechanized firing at the Mojave Antiaircraft Range (Camp M.A.A.R.) has surged in volume and vigor in the last two months, and this desert firing range has become the focal point for training Haan men to handle and appreciate their weapons. As many as six missions per day and considerable night and antimechanized firing has had the effect of revealing the need for concentrated and purposeful training. With its clear dry atmosphere, its lack of fog or clouds, the desert climate is ideal for both unlimited firing and maneuvering, and the hastening of the conditioning of our troops. After one week of firing and training in the desert, there results a visible improvement in the morale, attitude, and self-reliance of the men.

An officers' course of an adaptation of jiu-jitsu to modern warfare is well along towards completion. Instructed by a civilian with fifteen years study and practice in the tactics of hand-to-hand fighting, the class of officers, comprised of one from each battery in the training center, has received instruction in protection against knife and bayonet attack and fighting unarmed against an armed opponent. Knife to bayonet, bayonet to knife, hand to knife and hand to bayonet have special stress, but all possible conceivable conditions of individual hand fighting have been treated. This is a five-week course, allowing ample time for the techniques involved to achieve a certain degree of spontaneity.

Perennial as time is the construction in progress at the training center. The north and west areas have been completed; the hospital wings are about finished, and the ground has been cleared for a new headquarters

building to house the Camp Haan headquarters of the station complement. Of special interest to the officers is the more than doubling of the Officers' Club facilities which include among the new appendages a partially completed swimming pool, bowling alley, mess hall, and officers' sleeping quarters, none of which were available to Camp Haan officers previously.

Under the stimulus of California's sun consciousness, the program of beautification of the grounds continues with new vigor. A nursery of shrubs, bushes and trees has been completed, and transplanting of these is now in progress. Already palm trees have thrust their ever-greenness into several new areas, and before the winter is done, Camp Haan should appear much like a haven of tropical splendor in its shroud of flora.

News-worthy is a phase of prisoner rehabilitation started recently at the post stockade. Stimulated by the interest of Colonel Charles H. Mason, camp commander, a study of the soil conditions about Camp Haan was conducted, and as a consequence of this, prison constructed adobe buildings are now being erected. Led by a group of Mexicans experienced in the process, the clay is dug from the earth, then puddled with water and a straw binder, poured into wooden forms, left twenty-five days for curing, and

then almost miraculously there is a tough and weather enduring building block. The bricks are 4" by 12" by 18", and thus buildings constructed of this material have walls 12" thick. As a consequence of this and of the nature of adobe, the walls will be extremely heat-resistant, and this insulation will insure greater than normal comfort both in winter and summer. Already started by the prisoners is a 20' by 100' building to be used as a metal working, wood-working, and furniture shop for the prisoners upon completion. On the outside of these walls will be applied a half cement and half lime mixture which will repel the erosion effects of rain. The actual construction cost of this building including windows, roof, etc., will be only slightly over \$100.00. A new stockade headquarters building is planned of this same material and also barbecue pit, walls, workshops, etc. The prisoners have joined in the general enthusiasm to complete construction which will provide them with more luxuries and conveniences. They are turning out 1,000 bricks a day.

Nearby Hollywood has again sent Camp Haan Kay Kyser and his orchestra, Phil Spitalny and his all-girl orchestra, and Eddie Cantor and Dinah Shore, and numerous amateur shows presented at the Service Club.



Chesapeake Bay Sector



BRIGADIER GENERAL ROLLIN L. TILTON, *Commanding*

By Captain Alfred C. Andrews

Americans got a grim foretaste of invasion tactics September 17 when "Axis forces" struck at Fort Monroe, in the heart of the vital Chesapeake Bay Sector, using all the tricks and appurtenances of lightning warfare. Only a brilliant delaying action by a small holding force saved CBS headquarters from capture by the numerically stronger enemy.

A provisional infantry rifle company, reinforced by one section of 60mm mortars, launched the surprise attack. The defenders were a provisional rifle platoon reinforced by one section of .30 caliber machine guns.

Shielded by a mortar barrage simulated by dynamite charges, the hostile forces forded the moat, and employing nets, scaled the fort's inner parapet, overcoming fierce resistance. While rifles barked and machine guns chattered, the enemy, protected by a smokescreen during this initial thrust, gained ground. Planes from Langley Field assisted the attackers, dropping sacks of flour in lieu of bombs, strafing the harassed defenders, and

landing paratroops—cloth dummies—which, however, were quickly captured.

The radio station and signal station fell into the hands of the attackers, but a dogged defense halted them within 100 yards of the sector headquarters as the maneuver period ended.

Major Parker W. Newcomb, the maneuver director, in a critique at the post theater praised the enthusiasm and coolness of the men, commended their use of cover, smokescreens and handling of communications and evacuation of casualties.

Observed by Brigadier General Rollin L. Tilton, Commanding General of the sector, this full-scale invasion rehearsal commanded widespread public attention as a result of newspaper, radio and newsreel coverage, and stimulated interest in realistic training at Fort Monroe.

On October 27, Fort Story witnessed the use of a new type of amphibious landing barge. While high-



A familiar landmark at Fort Monroe prepares for the return trip to Germany, *via* the scrap pile.

ranking officers of the British and American navies observed, 200 recruits from Fort Monroe disembarked from the barges. Dressed in OD's, and carrying full packs and rifles, they waded chest-high through the surf to effect a landing. Results of the test were described as "satisfactory," and the performance of the recruits, who were members of a limited-service training battalion, indicated they will fit well into the war pattern.

Drawn largely from the midwest and the northeast, 450 of these soldiers have been assigned to man coast artillery batteries, to replace men who are needed for duty abroad, and to the hundred and one jobs a modern army must get done.

During the last two months, the Chesapeake Sector engaged in the scrap-metal campaign in earnest, Fort Monroe alone contributing more than 2,000,000 pounds. Sources of this huge scrap pile were old cannon, spools of steel cable, and tons of discarded mines. Monroe cut up an old German gun that had been standing in front of the Administration Building and another in Theater Circle. Both had been in the possession of the fort for twenty years. Camp Pendleton gave a 100-year-old anchor as part of its twenty tons of scrap steel, copper, aluminum, and tin.

Moving forward in a quickened program of training, the sector's forts and camp sent personnel on hikes with full packs, conducted truck convoys in blackouts, and bivouacked under simulated battle conditions. This toughening up process was supplemented by steady practice in the setting up of gun parks and encampments, and in the firing of weapons of all calibers.

Camp Pendleton, in particular, was commended by Lieutenant General Hugh A. Drum, Commanding General of the Eastern Defense Command and First Army, following an inspection. The "excellent appear-

ance of personnel and equipment" was especially noted. "The organization of the training area represented careful thought and planning," the citation said. "The results apparent in the appearance and alertness of the regiment's personnel was indicative of competent and efficient leadership."

A Fort Monroe seacoast artillery battery also gained the attention of General Drum for its firing performance last July. The general granted this battery, commanded by Captain S. L. Kaufman of Pittsburgh, an "E" for excellence.

On September 30, Major General Milton A. Beckord, Commanding General of the Third Service Command, made a tour of the facilities under his command in the Norfolk area. To newspapermen, he said that the supply picture is "brighter" and that perhaps the worst is over as far as obtaining equipment for the army is concerned.

To Camp Pendleton recently came Governor Colgate W. Darden, Jr., of Virginia. He inspected a battalion of the Virginia Protective Force at firing practice, drills, and tactical problems.

Fort Story soldiers, taking a hand at the entertainment field, have organized a musical revue entitled *Star and Girdle*. The cast, made up entirely of enlisted men, gave performances at Fort Story, Fort Monroe, and near-by communities.

Officer personnel of a CBS regiment commanded by Colonel Wilmer S. Phillips, has undergone many changes in the past two months. Graduates of both the Seacoast Officer Candidate School at Fort Monroe and the Antiaircraft Officer Candidate School at Camp Davis, North Carolina, have joined the regiment.



Hiking up the beach builds muscles and wind.



New England Sector

MAJOR GENERAL K. T. BLOOD, *Commanding*

By Major Joseph B. McCormick

A new and faster tempo is found throughout the New England Sector in the past few months. Problems, target practices, and drills have been carried out under far more realistic conditions, with gratifying results as regards the training of officers and men.

Beach combat problems involving all elements of the Sector Combat Teams, Infantry, Field Artillery, and Engineers have been carried out in both the Portland and Boston Subsectors. These problems have created a great amount of interest among the officers and men and have aided greatly in the furtherance of their training. In order to make the problems as absolutely realistic as possible without an actual enemy firing back, every detail practicable has been incorporated in these problems. Major General Kenneth T. Blood, Commanding the New England Sector, has taken these problems under his personal supervision and has been highly pleased with the results the officers and men have achieved.

Target practices have taken on an added interest with the spirit of competition between the subsectors and the units engaged. Proficiency in gun drill and

plotting-room exercises have been highly stressed. Almost every day for the past two months one could have found guns booming somewhere along the New England Coast and during the dark hours, antiaircraft searchlights could be seen stabbing the dark on tracking missions.

Another aspect of training throughout the Sector has been the added emphasis on the physical condition of the men. It is the belief of the Sector Commander that all men on combat duty should be in the finest physical condition in order to be fully prepared to carry out their combat duties.

In following out General Blood's ideas in this matter, the Newport Subsector under the guidance of Lieutenant Colonel John L. Daneker has carried on an extensive Guerrilla Warfare School. The results and enthusiasm derived from that school have been so excellent that the same training will be carried out throughout the Sector.

Another important phase of training in this Sector is that of intelligence. Training in intelligence is carried out on the shores as well as in the classroom. Observers,



Mural painted by Corporal Paul Silverthorne for the Officers' Club at Fort Williams, Maine. Corporal Silverthorne, a portrait painter and mural decorator, whose home is in Miami, came into the army about a year ago.

beach patrols, and motor patrols are learning the items of "what, when, and where" in the performance of their daily duties. This is borne out by the prompt reports received and disseminated to higher, lower, and lateral units. Men and officers alike are learning close co-operation with other services. This is true in play as well as at work and after recall is sounded one can see bluejackets mixed with the khaki in friendly competition for the possession of the football.

Recently General Blood and Admiral Wilson D. Brown, Commandant of the First Naval District, instituted and carried out the idea of weekly Joint Staff Conferences. Out of these have come many ideas and aids to both the Army and the Navy. Joint inspection

trips have also taken place visiting installations of importance to both the Army and Navy.

A gas school for all noncommissioned officers at Camp Framingham has been conducted and has been most outstanding and successful. It was instituted and given close supervision by Colonel James P. Powers, Commanding Officer of the Combat Team.

The sale of War Bonds in this Sector has taken a very sharp upturn in the past two months. Much interest has been shown and in one subsector over eighty per cent of the entire personnel have subscribed with one regiment, the 9th Coast Artillery, having ninety-four per cent at the present time. The other two subsectors are close behind.



Fort Eustis

BRIGADIER GENERAL FORREST E. WILLIFORD, *Commanding*

By Lieutenant John O. Looney



The presence of Governor Colgate W. Darden, Jr., of Virginia, as the guest of honor at a general review of the garrison here October 24 highlighted the activities at this Antiaircraft Replacement Training Center during the past two months.

Beginning at eleven A.M. the review lasted for approximately thirty-three minutes, and was the largest and most colorful to take place here since this post was reactivated nearly two years ago.

With Governor Darden on the reviewing stand were Major General Joseph A. Green, Commanding General, Antiaircraft Command, Army Ground Forces; Brigadier General Forrest E. Williford, Commanding General of Fort Eustis, and many high-ranking civilian and military officials from the peninsula area.

Governor Darden and General Green, escorted by a motor detail of Military Police, arrived at the reviewing stand and were met there by General Williford and his staff. Master Sergeant Ernest F. Bonnette, of the Plans and Training Office, was then introduced to General Green. Sergeant Bonnette served under General Green in the first World War.

The band rendered four ruffles and four flourishes as the Governor took his position on the reviewing stand, and then a nineteen-gun salute was fired in his honor. After that the Governor, the two Generals, and Colonel Clarence T. Marsh, Executive Officer of the AARTC, made an inspection of the troops. They were driven around the field in two staff cars.

Every available man except those needed to carry on the necessary functions of the post took part in the review that followed. The blue flag of the State of Virginia flew over the reviewing stands. The ceremonies were broadcast over Radio Station WGH of Newport News.

After the review General Williford conducted the guests on a thorough tour of the post, after which Governor Darden and General Green were guests of General and Mrs. Williford at an informal luncheon held at the General's quarters on the post.

The receipt of numerous items of new equipment has greatly facilitated and improved the training. A newly organized Tow Target Detachment is furnishing towing and tracking missions, and battery training now includes regular firing at a towed target. A representative of the War Department G-3 spent two days inspecting training, and a team of five officers from Headquarters Antiaircraft Command spent three days with us during the past month. The adoption of several suggestions made by these officers will improve our training methods and results.

On September 4 the *Sky-Watch*, an eight-page, tabloid-sized newspaper published for and by personnel of Fort Eustis, made its initial appearance. This was the first time a newspaper, devoted exclusively to news of this Antiaircraft Replacement Training Center, had been published and distributed to men of this command.

The *Sky-Watch* is given free of charge to every off-



Colonel Marsh, General Williford, Governor Darden, and General Green at the review of the Fort Eustis Garrison.

Signal Corps Photo

cer and enlisted man on the post, and carries no advertising. It has a well-balanced variety of news, features, pictures, cartoon humor, sports, and other stories pertaining to the welfare of the soldiers of this fort. It has been received with great enthusiasm by the men.

By the latter part of October the scrap-metal drive here had reached a total of nearly a half-million pounds. In addition to this post, salvage matériels have been collected in and around near-by Williamsburg. Among the articles gathered together are four old automobiles, an ammunition cart from World War I, a safe, aluminum water pitchers, old mattress springs, and many other items.

One of the entertainment highlights of the past two months came on Tuesday, October 6, when movie stars Jackie Cooper and Miss Phyllis Brooks made a personal appearance here with the USO-Camp Show presentation *Full Speed Ahead*. The cinema celebrities were scheduled to appear Monday night also, but inclement weather forced postponement of the show which was scheduled for the outdoor stage.

A huge crowd of soldiers was on hand for the appearance of Miss Brooks and Jackie Cooper Tuesday night, and were most enthusiastic in their reception of them. The two were the only stars who had made a re-

turn appearance with a USO-Camp Show revue, having made a tour with that organization last February.

On Furlough, a three-act comedy written and produced by Fort Eustis soldiers, has been playing at various Battalion Recreation Halls for more than a month, and has been attracting overflow crowds. A guest artist, Miss Lois West of Newport News, sings a number of songs during the show. The remainder of the cast is made up of soldiers.

The eye clinic at Fort Eustis, under the direction of Captain W. O. Linhart, has begun distributing special gas-mask glasses to the men here. The lenses in the new-type glasses are similar to the ordinary ones, except that they are smaller. The new glasses are narrower at the temples and the frames fit snugly along the side of the head and behind the ears.

For a long time soldiers who ordinarily wear glasses were badly handicapped when putting on their gas masks, for the two just wouldn't work together. But these disadvantages are being overcome by the distribution of the new glasses.

September 6 marked a year that the Sunday morning services at Hase Chapel here have been broadcast from 9:15 until 10:00 o'clock over Radio Station WGH of Newport News.

From a sports angle, the outstanding events of the period were the arrival on September 7 of Johnnie Risko, one-time outstanding heavyweight boxer, and the annual Post softball championship, won by the 2d AA Training Group outfit.

Risko, known as the Cleveland Baker Boy, met all of the heavyweight champions of the past twenty years, with the exception of Jack Dempsey and Joe Louis, yet never had a crack at the coveted title. Among his opponents were such men as Gene Tunney, Max Schmeling, Jack Sharkey, Max Baer, James J. Braddock, and many others.

In playoffs for the Detachment Softball championship, the Military Police defeated the 33d General Hospital in two straight contests for the right to meet the 2d AA Training Group team for the Post title. The 2d AA Training Group outfit then copped the crown by taking two out of three games from the Military Police. Private Bob Konold, hurler for the champions, tossed three shutouts in four tilts including the semi-finals and finals.



**Do we have your latest address? We want to
get your JOURNAL to you on time.**

Camp



Hulen

BRIGADIER GENERAL HARVEY C. ALLEN, *Commanding*

By Lieutenant Clyde L. Harlow

"It won't happen here" has been a common expression heard in and about the Camp Hulen area, but a short time ago it became a reality. For the past two years units receiving their training at camp have prepared hurricane plans which were as much a part of their schedule as a blackout convoy. Hurricane plans are needed by camps in tropical-storm areas and Camp Hulen recently had an opportunity to put its plans into effect.

Some warning in advance of the storm enabled many units to evacuate from camp and set up in bivouac areas in higher and drier near-by towns by the time the camp began to receive the full force of the storm.

Winds in excess of ninety miles per hour and a tide of about nine feet lashed the camp. The station hospital suffered the most from the hurricane. All of the hospital area was inundated and when the water had subsided all the floors were covered with a layer of silt, jelly fish and other uninvited visitors. Cleaning with fire hoses and mops was hurriedly done to make ready to receive patients who had previously been moved to a school in one of the surrounding towns.

Cypress, bamboo, cottonwood, and mulberry snags were part of the thousands that were washed up on the camp shore line. Newspaper accounts state much storm

damage was done on the Yucatan peninsula. This may have been the starting place for the many coconuts that were found in the camp area. Early explorers, to whom coconuts were a find, quickly gathered them up and removed the nuts from the shell. Snakes, insects, fish, pelicans, and plenty of skunks were found among the debris as the camp began to be policed. Rattlesnakes with nine or ten buttons were nothing uncommon during the clean-up period.

The wide pier which extended 1,080 feet out into Tres Palacios Bay is no longer the favorite spot for fishing and swimming, but we hope it will be rebuilt and again become the favorite spot for many during off-duty hours. Planks from the decking were found at a point far distant from their original place. Recently erected hutments, regarded by some as cardboard houses, stood up remarkably well. Only a small percentage were destroyed beyond repair, however roofless huts were no uncommon sight. In all cases concrete bases provided suitable anchors and kept the greater part of the huts from journeying to greener pastures.

Salvage crews that were organized quickly after the storm wasted no time in getting the camp livable in short order. Radio communication was used extensively to maintain contact with battalions and regiments in evacuated bivouac areas and at the appropriate time to



August 30—Shuffled by the storm.



October 30—Military order once more.

call the units back to camp from their hideaway places. Much praise is due the units in camp for their cooperation during this emergency. Without doubt, destructive as the hurricane was, it made the men of Camp Hulen far more conscious of the way they must cooperate when critical situations arise. The signal crew, including the civilian girl employees, stayed on the job until water drove them out. The surgeon and three assistants rode out the storm on top of a boiler.

The hurricane has now been history for two months and as noted by the comparison of the pictures taken August 30 and October 30, many of the marks of the storm have been removed. However, those who went through the hurricane will remember for years the punch a hurricane packs and no one can convince them it won't happen here. For it did. The might of a hur-

ricane and the speed with which things happen are hard to believe until you have been through one.

The command returned to its normal training pace in a short time after the hurricane and is now anxious to have the use of the many improvements being made in the training facilities. In the not too distant future we should, barring more hurricanes, have a new camp at Indianola, a very much better AA range there, and antitank and rocket ranges that should keep troops on their toes. We also will have a new firing point near Well Point, and we hope to improve the field of fire for the Turtle Point Range.

With the Air Corps and antiaircraft activities and other training now in progress, Matagorda Bay is a busy place and one to be avoided during week days unless one wants to be constantly under fire.



BRIGADIER GENERAL EARL H. METZGER, *Commanding AATC*

By Lieutenant Walter H. Dustmann, Jr.

Antiaircraft training at Camp Stewart during the past month continued apace, with the use of "county fairs" proving a valuable adjunct in the orientation training of AA recruits.

A typical county fair display, built by a battalion, occupies a goodly portion of a battalion parade ground, and is instrumental in giving fundamental antiaircraft knowledge to hundreds of new soldiers.

It has fifteen different types of displays, each complete with personnel, equipment and competent instructors. The trainees, in groups of fifteen to twenty, spend ten minutes at each display listening to the

lecturer, then at a given signal move on to the next exhibition.

The exhibits range from basic first aid to the actual manipulation of antiaircraft guns and machine guns, including:

Cordage and mechanical maneuvers; aircraft recognition; chemical warfare; chaplain's tent; small-arms practice firing range; chart of an antiaircraft battalion; care and operation of small arms; tank recognition; radio and telephone communications; motor transport; map and aerial photograph reading; and first aid.

Several thousand antiaircraft troops also witnessed a

unique firing demonstration at the Antiaircraft Range during October: field artillery versus antiaircraft guns.

A visiting battery of field artillery, 105mm guns, was emplaced on the range alongside Stewart's 90mm AA guns.

The 105s fired round after round at a ground target 6,500 yards out on the huge Stewart reservation while an observation plane overhead adjusted the fire.

The Stewart 90s then went into action against the same target.

Thousands of soldiers grouped in the vicinity and compared notes on the manipulation of the two types of weapons. After the firing, all battalions double timed to their firing points to the music of a training center band, one of which is always on Range "C", during normal training hours.

In addition to the regular daily antiaircraft firing of Stewart regiments and separate battalions at towed targets, another phase of antiaircraft training which has been receiving its proper share of attention at Stewart is antitank and antimechanized recognition, using full-scale models of Allied and enemy tanks built in a recent tank recognition contest here.

During most of the month the tanks were paraded before soldiers on the AA range and in the hutment and Post Headquarters areas, different types of tanks being sent out on different days. Organization commanders stopped the tanks and armored vehicles for periods of fifteen minutes to give the soldiers instruction in their recognition.

These realistic tanks were constructed by the soldiers themselves from nonessential materials; and the winning units received citations and three-day passes.

In another vital phase of Camp Stewart's war training effort in the past two months the post collected on the reservation or assisted nearby civilian communities in gathering more than 2,000,000 pounds of scrap metal. More than 700,000 pounds were collected from the post environs and the remainder was collected in trucks loaned by Stewart to neighboring communities.

Highlight of the social side of life at Camp Stewart was a post-wide contest to select the "most beautiful correspondent" writing to a Stewart soldier. Scores of photographs of personable wives and sweethearts of soldiers were submitted and four finalists were selected by a board of judges. These were displayed on page one of *Shoot 'Em Down*, official camp newspaper, and the winner selected by a secret ballot of all the soldiers in the camp.

The winner was Miss Anne Paulin, beautiful blonde model from New York City who a year ago made a thrilling escape from Finland, where she had worked in movies. Her soldier correspondent is Private Charles A. Tepper, former radio gag man and cartoon salesman from New York City, who has just been selected to attend the Antiaircraft Officer Candidate School at Camp Davis, N. C.



A "County Fair" exhibit — this one teaches aircraft recognition.

Miss Paulin will shortly be a three day guest of the post and Private Tepper, with all expenses paid to and from the camp and while here. She will be honored at a grand military ball, where she will be officially crowned as *Miss Shoot 'Em Down*. Other entertainment, including a tea dance, has also been arranged to make her visit a memorable one both for her and for Camp Stewart.

The beautification of Camp Stewart has also been extended, with the planting of eighty palm trees along the mile highway between the traffic circle at the Post's main entrance and the city of Hinesville.

The Hinesville Lions Club is cooperating in the landscaping and later it will be further enhanced with the planting of azaleas and shrubbery.

Sales of war bonds at Camp Stewart have soared to a new high with a total of more than \$400,000.00 in maturity value of bonds being taken by military and civilian personnel of the post. It included both cash purchases and those on the monthly pay reservation plan.

The civilian personnel drive has been accentuated with the appointment of Mr. B. F. Dillon, chief clerk of the civilian personnel division, as Civilian War Bond Supervisor of the Post. The new drive is designed to enroll at least 90 per cent of all civilian personnel as War Bond subscribers, with each one taking a total of at least 10 per cent of his or her salary in bonds each month.

Camp Stewart's colored troops came in for their share of attention, with a snappy boxing team that won a clean-cut victory over the nearby Savannah Air Base colored team, and the opening of a new library in their Service Club, equipped with more than 1,000 books of all types. These are being added to continually. A feature of the library being developed by Librarian A. L. Bell is a section on books by and about negroes. *The Soldier and the Law* is one of the most read non-fiction books there, Librarian Bell reported. Upwards of 2,000 soldiers have taken advantage of the library since its opening early in October.



Fort Sheridan

BRIGADIER GENERAL LARHETT L. STUART, *Commanding AATC*

By Captain Frank M. Dailey

The last few months at Fort Sheridan Training Center have seen the tempo ever increasing.

The training center is now receiving new men directly from the induction centers, and these new men go directly into the antiaircraft training without having had any previous military experience. This, of course, makes the task more difficult. However, the new men seem impressed with the importance of their task and they go seriously to work learning the job before them. A spirit of competition is quite evident, with each man trying to get a berth as a noncommissioned officer. After a few weeks of intensive training they look and act like veterans with the carriage of a soldier and the precision of an artilleryman. The first four weeks of their training is devoted primarily to basic subjects during which time each battalion is treated as a unit. This system is preferred as it utilizes to the maximum the services of the best qualified instructors in each subject, and insures more uniform training throughout the battalion. Therefore, unit training is stressed and each battery soon becomes a cohesive team, devoting the remainder of its training to the intensive study and use of the antiaircraft weapon with which it is armed.

A few weeks ago the training center had attached to it a Tow Target Detachment, composed of five officers and forty-one enlisted men. The detachment is composed of two A-20's, three B-34 bombers, and two Beechcraft Training Planes. The new detachment supplants the Civil Air Patrol assistance that was so ably and cheerfully given the units undergoing training here. Since the weather was perfect for all types of antiaircraft firing during the late summer, it was not unusual to see an A-20 or a B-34 zooming through the clouds early in the morning until late in the evening.

Firing seems to be the order of the day and all units are taking full advantage of their opportunities to get in all the practice possible during their training period. Since the acquisition of the faster and more powerful aircraft firing is conducted on every possible type course both day and night. It is not unusual to see searchlights throwing their brilliant shafts of light into the night searching for the sleeve towed by one of the medium

bombers, and then to see the tracers of the automatic weapons streak through the sky toward their objective; nor is it unusual to hear the booming of the 90mm guns reaching high up into the clouds for the illuminated target. The night practices with the automatic weapons, the 90mm guns, and the searchlights have been very successful and have been a helpful guide in training the men for enemy night attacks. The practices indicated that two searchlights could hold a target once it was in the beam regardless of the rate of angular travel. After the lights have illuminated the target no difficulty was encountered by the director crews in directing accurate fire.

Even though this section of the country has enjoyed the autumn, it is a well known fact that such will not be the weather in a few weeks. In the middle of November the temperature hovers around zero and stays there until sometime in March, making it necessary to do most of the training indoors. Fortunately, this post was a former cavalry post and the large riding hall is quite adequate for the winter training on all types of antiaircraft guns. In the riding hall a miniature airplane is being suspended on a circular cable and by use of this device, tracking practice can be afforded to the director crews. There are many spacious buildings available for gun drill and for classes in the care and maintenance of all types of equipment. Since this and Camp Edwards, Massachusetts, are the only antiaircraft training centers located this far north, some interesting experiments are anticipated in the operation of the different types of equipment in extreme cold weather conditions.

With the tactical trend pointing more toward airborne troops, this type of training will have to be taught to certain designated units in order that they will be proficient in airborne and air landing operations if they are called upon for this kind of movement. Facilities for this training are ready to be made available for whatever training is required.

The ever-growing importance of the identification of aircraft is being impressed upon all officers and enlisted men in order that they may be familiar with the charac-

teristics of both enemy and friendly planes. A qualified officer is now conducting an intensive three-week course in this training. The method of teaching this subject is new and interesting.

The limited space within the post boundaries presented the training center with a problem of getting adequate space for maneuver areas for separate battalions and regiments. The post itself is almost entirely built up and all problems conducted by separate battalions and regiments on the post are necessarily limited in scope. To overcome this limitation it was necessary

to ask the nearby residents for the gratuitous use of certain farm land that was not under cultivation and that was suitable for working out tactical problems and field exercises. The spirit with which the citizens in this vicinity donated their land was most gratifying. At the present time we have nearly thirty individual areas varying in size from a searchlight position of a few acres to areas of 1,000 or more acres. All of these areas are from one to ten miles from the post and afford, in addition to field work, excellent opportunities for the training of drivers in all types of convoy discipline.



North



West



Sector

By Major W. A. Hampton

Fall recreational activities at the Harbor Defenses of Puget Sound, under the command of Brigadier General James H. Cunningham, have been in full swing. The first enlisted men's party to be held at Fort Worden occurred on August 13. This post expects its new theater to be opened soon; an expanded recreational program, to include dances, is under way. New tennis courts are under construction and should be finished by the time this appears in print. New furniture has been added to the day room, and an interest in table tennis has resulted in plans for a tournament to be held soon.

At Fort Casey the Recreation Office reports the finest baseball team in that section of the country. They have won the Fort Worden Inter-post Championship, and also the Skagit Island League pennant. The men of this post are also making use of a new tennis court completed recently. The Gym has a new hardwood floor, and new equipment has been ordered and is being used as fast as the sporting goods stores can provide it.

Other recreational news includes the announcement of a new hostess at the post Hostess House. Once a month an enlisted men's dance is held and girls from a sixty-mile radius attend. An inter-battery softball tournament started September 3, and the men are eagerly awaiting the arrival of the football season, for which tentative plans have already been made.

A new gymnasium has been opened at Fort Worden. It is fitted out with Indian clubs, dumbbells, a boxing ring, punching bags, climbing rope, tumbling mats,

wrestling mat, barbell equipment, weight-lifting machine, gym horse, parallel bars, and medicine ball. Lieutenant Anthony Sarausk, former Fordham football star and member of the New York Giants, professional football team, will coach all football, basketball and baseball activities on the post.

The Harbor Defenses of Puget Sound have a War Bond purchase record to be proud of, according to Captain R. C. Davie, Finance Officer at Fort Worden. Figures released from the Finance Office show that for the month of August a very gratifying figure in total pay reservations went towards the purchase of war bonds. A total of 6.25% of pay is invested in bonds, and 35.45% of military and civilian personnel is participating in the War Bond sales program.

The death of Colonel H. M. Merriam, U.S.A., retired, came as a shock to all members of the command, among whom Colonel Merriam had many close friends of all ranks. Colonel Merriam had been a resident of Port Townsend since his retirement on May 1, 1929, and had commanded the 14th Coast Artillery, Harbor Defenses of Puget Sound, from April 1, 1922 to February 2, 1924, and again from August 23, 1927 to April 30, 1929. The death of this distinguished officer came on August 17, 1942.

Following simple services at the family home on Thursday, August 20, full military honors were rendered outside the residential grounds. Colonel Merriam was buried in Arlington Memorial Cemetery.



BOOK REVIEWS

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Strictly Military

The Old Master

PRINCIPLES OF WAR. By General Carl von Clausewitz. Translated by Han W. Gatzke. Harrisburg: The Military Service Publishing Company, 1942. 69 Pages; Notes; \$1.00.

The Military Service Publishing Company has filled a long-standing void with the publication of Clausewitz's principles. It is to be hoped that some day a complete edition of *Vom Kriege* will be again placed on the market; the material that appears in *Principles of War* appeared as an appendix of the third volume of the larger work.

War has changed since von Clausewitz's time. There are some who will argue that the principles, too, have changed with the weapons of war. Without getting into the argument, it is well to point out that the material in this little book is an important part of the education of an officer, just as much as a knowledge of Hippocrates and Paré is part of the education of a doctor.

Chemical Expert

GAS WARFARE. By Alden H. Waitt. New York: Duell, Sloan and Pearce, 1942. 315 Pages; Illustrated; Appendices; Index. \$2.75.

General Waitt has performed the barely possible—he has written a book for general circulation on a military subject that any civilian should understand, and that should prove instructive to any soldier. Much has been written about gas and chemical warfare, ranging from horror stories to injunctions to "Forget it, gas isn't dangerous." General Waitt takes the sensible attitude that gas warfare is with us, that it can cause casualties and influence military decisions, that defense measures are possible and worthwhile, and that there is no more reason for an emotional approach to the subject of chemical warfare than to the subject of infantry rifle fire.

Throughout the book, the author hammers at the idea that gas discipline is important for civilian and soldier alike. The best gas defense measures are practically worthless unless they are carried out by every person and every command likely to encounter gas, which in today's war may mean the defense worker in Wichita as well as the

soldier in Australia. War gases are not to be trifled with; they are cunningly designed to take advantage of the slightest chink in the armor of protection.

In italics, the author points out that "There is no treaty, to which this country is a party, in effect today with any major power which prohibits our use of gas." This will be news to many of us.

General Waitt writes not only of the strategy and tactics of gas warfare, but of the technique also. Methods of conducting chemical attacks as well as methods of countering them take up much space in this book. The author manages to write of a technical subject in a popular style that loses none of its instructive effect because it is popular. Incidents from General Waitt's own wide experience illuminate the lessons he drives home.

For Key-Clickers

THE ARMY CLERK. Fort Washington: Book Service, Adjutant General's School, 1942. 270 Pages; Index; Illustrated; \$.75.

Designed for the clerk in a unit personnel section of a regimental headquarters, the book is adaptable to use by clerks in other offices. Written for the inexperienced clerk, it takes him step-by-step through the various procedures with which he should become familiar.

The subject material includes: Organization of the Army; Organization of a Regimental Headquarters; Unit Personnel Section Procedures; Use of References; Correspondence; Filing; Office Habits and Attitudes; Typing and Duplicating; English Usage; and an appendix showing model forms with instructional notes.

Chow Time

ARMY FOOD AND MESSING. Harrisburg: The Military Service Publishing Co., 1942. 397 Pages; Illustrated; Appendices; Index; \$2.00.

This is the second edition of *Manual of Mess Management*, retitled and greatly improved over the first edition. One of the most serious criticisms of the first edition was the lack of an index; the index to this edition is complete and easy to use.

Information on kitchen trucks and the new gasoline

field ranges has been added, and the section on meat cutting has been expanded and revised to conform to the new methods as outlined by the National Live Stock and Meat Board. Another improvement occurs in the recipes; the new recipes are richer in eggs, meat, and other important ingredients, which will result in more palatable and more fortifying meals.

The book is a compilation of official material from many sources, with added material dictated by the experiences of a mess officer who operated company-sized messes in the CCC, and larger messes in the army. The serious mess officer, cook, mess sergeant, or even the K.P. who would like permanent work in the kitchen, will find much here to lighten his labors and to help serve better food.

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A MATHEMATICS REFRESHER. By A. Hooper. Henry Holt and Co., 1942. 338 Pages; Tables; Exercises; Index; \$2.50.

Designed to teach young men of average intelligence enough Arithmetic, Algebra, Geometry and Trigonometry to become airplane pilots, navigators, and bombardiers, this book has been streamlined to the bare essentials. It is unlike any of the formal mathematics texts; it was written by a teacher experienced in training airmen, and was laid out with that end in view. The presentation of the material does not follow the familiar lines; it is not compartmented in the classical manner. The familiar pitfalls that classroom teachers have learned to explain to class after class of students are here explained in the text, so that little or no help will be required from sources other than in the book.

An instructor at the Camp Davis OCS recommends ten of the thirty-three chapters as a refresher for men about to attend the candidate school, and the entire text is recommended to those who have not had sufficient mathematical background. The chapters recommended are those which directly concern the study of Algebra, Logarithms, Trigonometry, and Coordinates.

Primer for Gunners

SHELLS AND SHOOTING. By Willey Ley. New York: Modern Age Books, 1942. 223 Pages; Illustrated; \$2.00.

Willey Ley, science and military editor of the newspaper *PM*, has written a worthy companion volume to his *Bombs and Bombing*. The book explains in simple language (it is written primarily for civilians) how artillery works. There is just enough history in the text to explain the background of the statements about the present.

Mr. Ley is at his best in simplifying the explanations that are familiar to every Coast Artilleryman. With well-conceived diagrams and homely similes, he explains such obvious but hard-to-put-over ideas as elevation to get range, the rise and decline of shrapnel, the reasons why artillery shells are not streamlined, why guns are built up, etc.

The author's approach to artillery tactics is particularly sane, especially in his treatment of the bomb vs. shell controversy. It is refreshing to find a popular author who is not

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carried away by the popular idea, but insists on sticking to the facts as he sees them.

The book is recent enough to mention the *Guerlich* gun, and should be particularly helpful to officer candidates and prospective officer candidates who want to know more about the principles of artillery before they settle down to the grind of learning unfamiliar things under the forced draft of the OCS.

Military Theory

THE WAR ON THE CIVIL AND MILITARY
FRONTS. By Major General G. M. Lindsay. New
York: The MacMillan Company, 1942. 112 Pages;
\$1.50.

General Lindsay, the well-known British exponent of tanks, wrote this book as the Lees Knowles Lectures for 1942 for delivery at the University of Cambridge. It is a compact survey of total war as it affects civilians and the military. Much in the book is known by our army, even though it may not be recognized by individuals, or was recognized too late. Criticism of the author's conclusions in many instances is possible, but their final evaluation cannot occur until the war is over. The author naturally, considering his background, stresses the tank, but shows commendable restraint in fitting tank action into the picture of the combined arms—he is no all-out faddist.

Surprisingly enough for a soldier, General Lindsay does well in his treatment of the home front, concerning both the organized civilian effort and the general effect of total war on the civil population. He stresses particularly the Russian resistance, attributing it in large part to the fact that the Russian, civilian and soldier, knows that total war is a fact that cannot be brushed off with hope, but must be countered with effort.

Ground School

ELEMENTS OF AERONAUTICS. By Francis Pope
and Arthur S. Otis. New York: G. P. Putnam's Sons,
1942. 650 Pages; Tables; Bibliography; Index; Illustrated;
\$3.75.

After leafing through this book, the reviewer was certain that he was born twenty years too soon. Designed as a text for high school courses in aeronautics, the book seems to present a complete ground-school course in words any high school freshman should be able to understand, with pictures to interest and instruct and some of the clearest diagrams it has been our pleasure to study for a long while.

Good Neighbors' Language

CONVERSATIONAL SPANISH. By S. Lipp and H.
V. Besso. New York: Hastings House, 1942. 168 Pages;
Illustrated; \$1.25.

CONVERSACION. By S. Lipp and H. V. Besso. New
York: Hastings House, 1942. 292 Pages; Index; \$1.50.

Both of these books were prepared by the Works Projects Administration, the first sponsored by the Army Air Forces, and the second by the Army Air Forces and the Navy. Both books, also, are designed to be used, not for

self-study, but in a class or with a teacher. Since they were written for soldiers, they stress a vocabulary that will be of use to a soldier, and especially, Air Force members.

Conversational Spanish is the basic book, for mature students who have not previously studied the language. *Conversacion* is a bit more advanced, to serve as a text for students who have had some basic training in conversational Spanish. Down to earth, the books are designed to present the most useful vocabulary for a member of our armed forces in the quickest possible time.

Guidebook

ARMY POSTS AND TOWNS. By Charles J. Sullivan. Los Angeles: The Haynes Corporation, 1942. 187 Pages; Index; \$3.00.

Although a third edition of this standard book came out earlier this year, this new fourth edition was required by the increasing size of the army, with new posts springing up and conditions changing at the familiar old posts.

Posts outside the continental limits of the United States are not listed, for obvious reasons, and other information that appeared in previous editions has been deleted.

Biography

Admirable Admiral

ADMIRAL SIMS. By Elting E. Morison. Boston: Houghton Mifflin Company, 1942. 533 Pages; Bibliography; Index; Illustrated; \$5.00.

This outstanding biography of an outstanding man can not be reviewed adequately in a military publication. Admiral Sims was an officer worthy of his country's respect and admiration because he did not conform to the stereotyped picture of an officer of the armed services; the military reviewer is placed in the embarrassing situation of either condoning personal actions that ran counter to the accepted pattern of military conduct, or of denying the results of the man's efforts.

That Admiral Sims loved the Navy, helped in bringing many needed reforms to our sister service, and was guided more by his conscience than his ambition, cannot be denied; that he was of a type that should not be too numerous in any armed service is also undeniable. A Navy with too many Admiral Sims' would not be the cohesive fighting force that we need as our first line of defense.

Mr. Morison has written a sympathetic biography, but not so sympathetic that it attempts to gloss over the obvious indiscretions Admiral Sims committed. The Admiral was a great American, but a human one, who fought the fight as he saw it, with courage and a "Damn the torpedoes" attitude.

THE MAN WHO DARED TO CARE. By Mary Tarver Carroll. New York: Longmans, Green and Company, Inc., 1942. 216 Pages; \$2.00.

James Oglethorpe, the founder of the colony of Georgia, is one of our lesser-known historical figures. Many school histories leave the impression that he was a warden of a

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penal colony, rather than the public-spirited and humane leader of a movement for recognizing the rights of the poorer and oppressed classes. The Georgia colony was a haven for persecuted religious sects and for those unfortunates who had been in debtors' prisons.

Mary Tarver Carroll's biography of Oglethorpe is informative and sympathetic. Aside from a literary style that was in vogue in the '90s, this life story of a great man fills satisfactorily a void in the historical works of our country.

Disunity In War

ABRAHAM LINCOLN AND THE FIFTH COLUMN. By George Fort Milton. New York: The Vanguard Press, 1942. 334 Pages; Bibliography; Index; Illustrated; \$3.50.

During the Civil War, the fifth column activities in the North were infinitely more serious than our similar troubles today. We were a young nation then, prepared neither for war nor peace. The F.B.I. was unheard of; the Secret Service had neither the experience nor the prestige it has today; Military Intelligence was practically an unknown concept. The war itself was a product of the nation's disunity; much of the war's length and violence was due to the North's disunity.

Copperheads, Butternuts, Knights of the Golden Circle, Sons of Liberty and many more societies and individuals living in the North desired the North's defeat because they believed that individual liberties and states' rights were more important than the United States. Rather lose the war to the Confederates than submit to a government, that in time of great emergency, found it necessary to curtail temporarily some of the privileges of citizenship and impose some of its duties.

Mr. Milton, one of the literate historians who finds it possible to write an authentic history without resort to dozens of irritating footnotes, has done a scholarly and readable job of research. The ramifications of the secret societies, the machinations of Vallandigham, the more sensible approach to the problem by Democrats of the type of Horatio Seymour, and the whole confusing push-and-pull of the many factions and special interests is handled in a masterly fashion that helps lead the reader through the maze of events, interrelated, occurring in widely separated places at the same time.

There is a striking similarity between many of the events of 1861-65 and the events of 1941—. Special interests then were willing to gamble their country's future for their own immediate gain; political irreconcilables were dangerous during the Civil War, and some went into open disloyalty. Mr. Milton, mercifully, does not insist on the reader noting the similarities; they are there to be noted, however.

Early Totalitarian

BETWEEN HITLER AND MUSSOLINI. By Prince Ernst Starbemberg. New York: Harper and Brothers, 1942. 281 Pages; Illustrated; \$3.00.

Prince Starbemberg's part in the troubles that led to the disappearance of Austria (and to the present war) is too little known in the United States. Now an officer in the

lying forces of the Free French, the Prince has written an autobiographical account of his moves in the international chess game.

Starhemberg was never a democrat, although he insists he was not a Nazi. He believed in Austria, and Austria's independence of foreign influence, especially German influence. His object, as he explains it, was to guarantee Austria's future against Germany and any other nation. That his means of guaranteeing that future took the form of a private army on the Nazi style may sit poorly with most Americans, but Starhemberg insists that his motives were not selfish, but patriotic.

His story details many moves in the fight against the growing Nazi influence in Austria. Mussolini too, at that time, detested Hitler and Nazism, according to the author. That Hitler came out on top, not only in Germany, but in Austria and Italy, was the result of a long series of mistakes by the political leadership of the countries involved, along with Hitler's ruthlessness and the Nazi party's fanaticism.

There is much in this book that will show us how *not* to preserve our country from totalitarianism, the Nazi kind or any other brand.

War in Europe

Hitler's Thorn

COMMANDO ATTACK. By Gordon Holman. New York: G. P. Putnam's Sons, 1942. 258 Pages; Illustrated. \$2.50.

Gordon Holman, a British journalist who has been with the Commandos on several forays, has managed to fill a rather thick book with many words and little real information about his subject. Of course censorship is necessary, and most of the details of Commando operations are classified military information, but the reader (at least the military reader) will be disappointed at the lack of facts and at the constant stream of praise and admiration directed at these super-fighters without presenting any concrete detail to justify the fine things said.

The average American with access to a newspaper knows the Commandos are highly-trained, brave, efficient and effective fighters. He knows that Hitler would rest more easily if there were no Commandos, and that these fighters are volunteers who look forward to a good scrap with zest. This book merely repeats that information, and does not answer the questions of training and operations that are in everybody's mind. It is probably, however, a good thing for Allied military security that this information is withheld.

Russia vs. Germany

DUEL FOR EUROPE. By John Scott. Boston: Houghton Mifflin Co., 1942. 298 Pages; 83 Page Appendix. \$3.50.

John Scott, who wrote *Behind the Urals*, has turned out an exceedingly detailed account of the plays in the diplomatic chess game that brought on the war between Germany and Russia. As a correspondent in Moscow for a string

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of American and European newspapers, Scott kept track of the moves and countermoves that preceded the opening of Hitler's attack. The Finnish war, the acquisition of the Baltic states, the off-again-on-again alliances with the Germans, are all treated in wealth of detail. It is futile to attempt to explain some of the moves in terms of American ideas and ideals; Scott chronicles the events without attempting to explain many of them.

According to Scott, the Finnish war was fought with reservist troops, who were ill-clad, ill-fed, and ill equipped. The war was valuable to the Russians in that it pointed out many glaring weaknesses of staff work and supply. That the Russians corrected the deficiencies is rather obvious in view of their stand to date.

For an unbiased, searching, and human view of what makes our Russian allies tick, this book is good. Scott, who lived for almost ten years as a Russian and married a Russian peasant girl, seems to point out the Russian strengths and weaknesses without fear or favor. He believes the Russians are a fine race, but different. Without preaching, he indicates that the sooner we begin to understand Russia and her aims, the better it will be for the peace of the world.

The Russian War

THE GREAT OFFENSIVE. By Max Werner. New York: The Viking Press, 1942. 346 Pages; Notes; Index. \$3.00.

Max Werner, noted for his painstaking research, has written an opinionated, yet calm, appraisal of the present war since Germany attacked Russia. The first part of the book is an explanatory history of the war thus far, with indications of the author's estimates of why and how the events of the Russian campaign occurred. Werner is handicapped by the unreliability of the accounts on the German side and the skimpiness of the Russian communiques, but he does not mention in the book that his information might not be reliable.

Part II is an estimate of what may happen on the Russian front; he gives the edge to the Russians because their military and production potential is increasing while Germany's is decreasing. Part III treats, with much less detail than was offered in the first two sections, with the British fronts and the Pacific war. Part IV hints at strategy for Allied world victory.

The author states that the Germans expected the break-through of the Stalin line would have the same demoralizing effect that the break-through of the Weygand line had on France, and that they never quite recovered from their miscalculation on this point. Hitler's abandonment of classical German war plans, the author finds, also worked against the German forces.

Werner concludes from his study that mobile warfare does not have unlimited freedom of action; it is also interesting that the German mechanized units seem road-bound, making them easier victims of Russian antitank methods. German artillery, the author says, has not been used in proportion to its powers, to the detriment of their military effort. He believes German technical superiority is evident in practically every class of matériel except fighter and bombing planes; he is just short of lyrical in praise of American planes.

Behind the Russian Front

WE'RE IN THIS WITH RUSSIA. By Wallace Carroll. Boston: Houghton Mifflin Company, 1942. 264 Pages; Index; \$2.00.

Book subjects, like bananas, often come in bunches. The "Why France Fell" wave has subsided, and now we are knee-deep in books on Russia. Most of these books are written by newspaper men—some of the authors really know the countries of which they are writing, others act as if they do, and others quite frankly explain their background and permit the reader to make his own evaluation of the worth of their observations.

Wallace Carroll belongs in the third group; he lets the reader know very early in the game that he is not a Russian "expert," but a competent newsman who covered Russia during a critical period, and has made his own observations that may or may not agree with the observations of others. Carroll found the Russians efficient, honest, determined, and hard to fool. His findings agree with those of most of the other newsmen; his method of presenting those findings shows more polish and literary schooling than several of the other writers who have chosen the same subject.

Americans should know more about our Russian allies; this book is as good as any other as a starting point to gain some of that knowledge.

Termites Within

THE ROAD TO VICHY. By Yves Simon. New York: Sheed and Ward, 1942. 207 Pages; \$2.25.

Yves Simon, teacher of philosophy at several French universities and currently a professor at Notre Dame, South Bend, has traced the weakening of popular government and the civil influences that rotted France from 1918 to 1938. This is another of the long series of "Why France Fell" books; this one's value is that it points at some of the weaknesses of the United States—weaknesses that arise from our very love for democracy.

Our Enemies Don't Enjoy It

LAST TRAIN FROM BERLIN. By Howard K. Smith. New York: Alfred A. Knopf, 1942. 359 Pages; \$2.75.

This book has given the reviewer more pleasure than anything he has read in many months. Smith, who left Berlin on December 6, 1941, writes of the suffering of the German people and the disintegration of their morale. According to Smith, their diet is scanty and poorly balanced, large segments of the population now realize that Nazism is the worst thing that could have happened to them, and the grinding pressure of war and Nazi economics is causing widespread suffering. Smith, after living with the Germans for several years as a newspaper reporter and radio broadcaster, enjoys the Germans' troubles, and one cannot blame him.

On the other hand, the author does not believe, as some repressible optimists do, that the Nazi system will fall from anything less than a smashing military defeat. The Gestapo and the S.S., the army, and the pampered youth

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of Germany are too solidly behind the Nazi system for the spiritless populace to revolt. Smith points out, too, that the people realize the vengeance that will be exacted by the conquered nations if Germany is defeated—the "wildcat by the tail" story all over again. He believes that specific promises of punishment for the leaders of Germany and the offer of a workable economic system for the people is the only thing that can lead toward revolt.

Smith, although young, is apparently a keen observer with a good grasp of economics. He tells much of the inside of Hitler's use of his power that has been told before, but not as boldly and in such spade-calling words—especially in reference to the moneyed power behind the Nazis.

Varied Subjects

Our Worst War

STORM OVER THE LAND: A PROFILE OF THE CIVIL WAR. By Carl Sandburg. New York: Harcourt, Brace and Company, 1942. 429 Pages; Index; Illustrated. \$3.50.

Carl Sandburg has done it again. This time it is a concise history of the Civil War that loses none of the effect of Sandburg's literary quality because of the book's brevity. The author handles the intertwining political and military threads of the story of the war years in a manner that indicates clearly how military considerations were influenced by political considerations, and vice versa. The commanders of the Army of the Potomac are treated in turn, probably with more emphasis than they warrant, because of their close contact with Lincoln while that troubled leader carried the burden of his subordinates' incompetence and the North's disunity.

Mr. Sandburg has chosen well from the Brady collection of Civil War pictures. These pictures and a profuse use of line engravings for decorative purposes make the book one to be cherished in the home library, aside from the excellence of the subject matter.

The work is taken in large part from Sandburg's biography of Lincoln, with much of the material revised and some added.

Gibraltar to Suez

THE MEDITERRANEAN: SAGA OF A SEA. By Emil Ludwig. New York: Whittlesey House, 1942. 622 Pages; Index; Appendix; Illustrated; \$3.75.

Emil Ludwig uses shrewdly compounded assumptions to cement his highly polished facts into a book that should become one of the standard histories of the Mediterranean area. Ludwig's story of the hub of the ancient world is far removed from the dry, factual histories that make laggards of students. If there had never been a Mediterranean Sea, this book would still make fascinating reading. Since the Mediterranean has been an important fact since the dawn of history, and since right now the fate of the world as we know it hinges on events in this same area, it is hard to see how any intelligent reader can neglect this volume.

The story of the Mediterranean is carried up to 1939, when so many other things ended. Ludwig understands

the Italians, the Greeks, the Syrians and the other people who inhabit the area, and his masterly writing imparts that understanding to the reader. From Themistocles to Napoleon, from Alexander to Garibaldi, the author has written of the leaders and the people of this wide area. Tides, ships, wars, agriculture, trade, art, and figures of legend and history blend into a running story under Ludwig's craftsmanship. This is a book to treasure.

✓ ✓ ✓

A Lot of the Best

MEN AT WAR. Edited by Ernest Hemingway. New York: Crown Publishers, 1942. 1,072 Pages; \$3.00.

With such authors as Julius Caesar, Colonel Theodore Roosevelt, Xenophon, Laurence Stallings, Admiral George Dewey, Victor Hugo, Count Leo Tolstoy, Livy, Colonel John W. Thomason, Jr., and Hemingway, it is hard to see how this compilation could miss. Hemingway, no amateur himself, has chosen his idea of the eighty best war stories of all time, and it's an all-star team he has selected.

Those who believe that the best goods come in small packages may have to change their ideas when they see this 1,072-page volume, at the popular price of \$3.00.

The soldier who enjoys soldiering, and the civilian—child or grandfather—who enjoys stories of fighting and adventure, will find stories here for passing entertainment and for re-reading. The selection of stories is late enough to include Harold F. Dixon's experiences on the rubber raft and Alan Moorehead's story of tank fighting in Libya, but the story of David and Goliath from the bible, and the Battle of Shiloh by Lloyd Lewis are here also. Many of the familiar stories, and many new to the reviewer, are present for evening after evening of exciting reading.

This one would be an excellent Christmas gift.

✓ ✓ ✓

Moguls and Khans

PAGEANT OF INDIA. By F. Yeats-Brown. Philadelphia: Macrae Smith Company, 1942. 295 Pages; Index; \$2.50.

It is hard for the average American to understand the troubles that are brewing in India today because those troubles are not merely the results of the workings of Gandhi, but of centuries and millenia of strife-torn history. For tens of centuries before Gandhi was born, for centuries before England herself was born, India was the scene of conquests, revolutions, and civil wars. Far from being a homogeneous nation, India is really a continent made up of many nations, many religions, and many castes, who have not been able to live in peace since the dawn of history.

F. Yeats-Brown, author of *Lives of a Bengal Lancer*, has given us a history of India from its earliest days, through the reigns of the Moguls and the horrors of the Sepoy Rebellion, to the present. He has also attempted to foresee a bit of the future. If the author set out to prove that peace in India must await several more centuries of education to break down the caste system, and several more to solve such problems as what to do with the Mohammedan and other minorities, he has done it well. The straightforward answer, "Give them their independence," will solve few problems, as the past and the present combine to prove.

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Hot and Humid

HOW TO LIVE IN THE TROPICS. By Virginia Hunt.
New York: Harcourt, Brace and Company, 1942. 170
Pages; Charts; Index; \$1.50.

Slanted for the woman who is going to live in the tropics, this book contains information on many things—from a short course in home nursing to a discussion of how to keep happy when the temperature and the humidity are pressing the top of the gauge. By far the most valuable part of the book is the section on preparation for the trip; Mrs. Hunt gives some advice on preparing physically and mentally that should save much grief during the stay in tropic lands.



Civilian Defense

HANDBOOK OF CIVILIAN PROTECTION. By the
Civilian Defense Council, College of the City of New
York. New York: Whittlesey House, 1942. 159 Pages;
Bibliography; Appendices; Index; Illustrated; \$1.25.

Compressed in one small volume is a wealth of information for the civilian defense worker and the would-be defense worker. From civilian salvage hints and principles of a well-balanced diet to tables of chemical warfare agents and principles of fire prevention, this handbook covers most, if not all, of the civilian defense picture. The book should be clear to any person who can read, but it is still adult and calm in its approach to the important subject of the civilian effort in total war.



Survey Course for Women

ARMY GUIDE FOR WOMEN. By Marion M. Dilts.
New York: Longmans, Green and Co., Inc., 1942. 205
Pages; Illustrated; Index; \$2.50.

Miss Dilts evidently did not intend this book to be another *Officers' Guide* for women, but as a book to familiarize the new WAAC or army wife or army daughter (or even army sister) with the service as a whole. The author has drawn a general picture of how the army works, explaining quite well not only how it is different from civilian life, but why. She does not go into such things as calling, retirement benefits, and the other things that distinguish previous books for women—rather, she attempts to make the life of an army woman less unfamiliar to the bewildered civilian.

There are more than a few minor inaccuracies in the book, but the inaccuracies are minor, and do not detract much from the purpose of the volume.



Pig Boats

SUBMARINE. By Kendall Banning. New York: Random House, 1942. 52 Pages; Illustrated; \$1.00.

This is primarily a picture book, with appropriate text material, giving the story of the submarine in an entirely popular and nontechnical manner. Charles Rosner did the pictures, many of which are reproduced in colors.

COAST ARTILLERY JOURNAL INDEX

Volume LXXXV, 1942

Jan.-Feb., 1—March-April, 2—May-June, 3—July-Aug., 4—Sept.-Oct., 5—Nov.-Dec., 6

2-22 Indicates Page 22, March-April Issue

AUTHORS

Aber, John Edward	3-16
Allen, Carl M., Jr.	4-48
Belleroche, Pierre	3-24
Bray, William P.	3-57
Bullard, A. L.	4-52
Burton, C. Grant	6-23
Burgess, George H.	4-50
Button, Earle D.	5-52
Caldwell, Wofford T.	1-63, 2-22
Caruncho, Ricardo Castro	6-11
Chandler, Horton L.	1-67
Chickering, Roger W.	5-46
Combes, Charles L.	6- 8
Cooke, David C.	5-4, 6-46
Crockett, James C.	5-43
Dressner, H. R.	5-12
Eichinger, J. W., Jr.	6-25
Fowler, Henry G.	6-32
Gayn, Mark J.	1-14
Gill, Burgo D.	3-52
Green, Joseph A.	5-40, 6- 5
Greene, Harold F.	4-12
Guyer, L. M.	4- 4
Harry, Ruth	6-41
Havighorst, Russel K.	4-60
Hersey, John	4- 8
Hicks, Robert B.	6-22
Hindle, Clifford D.	1-25
Holden, F. H.	1-71
Holland, C. H.	4-38, 42
Holmberg, Donald W.	6-44
Jones, Bruce B.	4-19
Kelly, Lora	3-30
Kelton, John T.	5-26
Kendall, William H.	5-35
Ketchum, Ralph E.	1-41
LaGarde, R. D.	2-14
Lazar, A. M.	4-24
Lee, Clark	2-64
Lepesquer, R. A.	2-34
Lucas, Alexander H.	4-36
Luther, Stanley W.	6-28
Mills, Lawrence A.	6-22
Milmore, Oswald H.	2-55
Mitchell, Herbert F.	5-17
Mozzicato, Paul J.	4-26
McNair, Lesley J.	6-4, 30
McNeely, O. D.	2- 9, 3- 4
Nelson, Paul B.	1-48, 3-21
Pohl, Marion G.	1-57
Raymond, Edward A.	4-19
Redford, Ralph H.	5-35
Reed, Paul L.	1-44
Reese, Franklin W.	2-52, 5-66
Rude, W. A.	4-31
Saint-Gaudens, Homer	3-10
Smirnoff, Robert J.	6-38
Smith, K. C.	2-47
Spaans, Harold	3-34
Thompson, Louis H.	2-42
Treat, C. H.	5-85
Tredennick, D. C.	2-36
Tull, Raymond R.	6-23
Turley, R. E., Jr.	1-20
Underhill, J. G.	1-28
Valdes, Basilio J.	5-89
Windas, W. A.	1-73, 2-72
Wolfe, General	5-42
Workman, William D., Jr.	1-36

TITLES

A

AA Action on Bataan, <i>Hersey</i>	4- 8
AA Board, Establishment of	4-74
AA, Using the Crichlow Slide Rule, <i>Eichinger</i>	6-25
AA Firing Point, Organization of an, <i>Caldwell</i>	1-63
AAAIS Communication Net, <i>Burgess</i>	4-50
About Clark Lee	2-64
Alert Positions, <i>Mozzicato</i>	4-26
American Red Cross, The, <i>Kelly</i>	3-30
Antiaircraft Artillery Board Notes	5-76, 6-66
Antiaircraft Artillery of the Army Corps, <i>Caruncho</i>	6-11
Antiaircraft Command	3-42
Antiaircraft Command Inspection Team, <i>Luther</i>	6-28
Antiaircraft Communications, <i>Stevenson</i>	5-50
Antiaircraft, Our Expanding, <i>McNair</i>	6-30
Antiaircraft Rockets, <i>Pictures</i>	5-60
Antiaircraft Training, <i>McNeely</i>	3- 4
Antimechanized Defense, <i>Caldwell</i>	2-22
Antitank Guns, <i>Crockett</i>	5-43
Army Ground Forces, Antiaircraft Command	3-42
Artillery Production, <i>Pictures</i>	4-54
Association Medal Winners	1-61
At the Harbor Entrance, <i>Pictures</i>	4-40
Automatic Weapons, Training, <i>Mitchell</i>	5-17
Axis Air Transport, <i>Underhill</i>	1-28
Axis Troops Invade Fort Monroe, <i>Pictures</i>	6-59

B

Ballistic Correction Rule, <i>Holmberg</i>	6-44
Barrage Balloons, <i>Turley</i>	1-20
Barrage Balloons, <i>Kendall and Redford</i>	5-35
Barrage Balloons at Sea, <i>Pictures</i>	5-38
Barrage Balloon Board Notes	3-61
Bataan, <i>Hersey</i>	4- 8
Better than the Enemy, <i>Hersey</i>	4- 8
Book Reviews	1-102, 2-85, 3-99, 4-98, 5-116, 6-98
British Sea Forts, <i>Pictures</i>	3-44
British Seacoast Defense, <i>Pictures</i>	2-20
Building Barrage Balloons, <i>Pictures</i>	6-20

C

Camouflage, <i>Saint-Gaudens</i>	3-10
Camouflage Hints	2-13
Camouflage School for Harbor Defense, <i>Ketchum</i>	1-41
Characteristics of Enemy Aircraft	3-55
Checklist for Mobile AA Battery Commanders, <i>Gill</i>	3-52
Citations	4-77
Coast Artillery Activities 1-82, 2-73, 3-75, 4-80, 5-85, 6-75	6-75
Coast Artillery Afloat, <i>Jones and Raymond</i>	4-19
Coast Artillery Board Notes	1-74, 2-58, 3-58, 4-68, 5-73, 6-63
Coast Artillery Forts (Bataan), <i>Map</i>	2-67
Coast Artillery in Action	2-68, 3-69, 4-76, 6-60
Coast Artillery in Art Competition	4-23
Coast Artillery Journal, <i>History</i>	1- 2
Coast Artillery Officer Candidate School, <i>Smirnoff</i>	6-38
Coast Artillery Orders	1-100
Coast Artillery School Keeps Pace, <i>Hindle</i>	1-25
Concerning Dependents, <i>LaGarde</i>	2-14
Convoys, Coast Artillery Afloat, <i>Jones and Raymond</i>	4-19
Corps Area Boundaries	3-62
Corregidor's Last Breath	4- 2

D

Defense Against Low-Flying Aircraft, <i>McNeely</i>	2- 9
Defense Against Tanks, <i>Caldwell</i>	2-22

Deflection Board M1, <i>Kelton</i>	5-26
Disembarking Operations, <i>Bellerocke</i>	3-24
Dive Bomber Defense, <i>Spaans</i>	3-34
Doctoring the Drift, <i>Smith</i>	2-47
Dutch Harbor, <i>Tull and Burton</i>	6-23

F

Fanatics in Uniform, <i>Gayn</i>	1-14
Field Engineering for AAA, <i>Nelson</i>	1-48
Filipino Soldier on Bataan, <i>Valdes</i>	5-89
First Fifty Years	1- 2
Flag of Corregidor	3- 2
Flag of the Second Coast Artillery	4-51
From Butter to Guns, <i>Reed</i>	1-44

G

Gallery Small-arms Range, <i>Nelson</i>	3-21
General Green's Message	6- 5
General McNair's Message	6- 4
German Air Force, <i>Cooke</i>	5- 4
German 88-mm Gun, <i>Crockett</i>	5-43
German Soldier, The	5-61
Give us Leaders, <i>Dressner</i>	5-12

H

Harbor Defense Directing Point, <i>Holden</i>	1-71
Harbor Entrance Control Post, <i>Pictures</i>	4-40
High Speed Targets, Range Data For, <i>Rude</i>	4-31
History, Coast Artillery Journal	1- 2
Horizontal Fire Problem, <i>Caldwell</i>	2-22
How Britain Protects Her Merchant Ships, <i>Pictures</i>	5-38

I

Identification of Aircraft	2-23
Improvised Mount for Machine Gun, <i>Allen</i>	4-48
Inspection Team, Antiaircraft Command, <i>Luther</i>	6-28
Instructions for Young Officers, <i>Wolfe</i>	5-42
Italian Planes, <i>Cooke</i>	6-46

J

Japanese Army, <i>Gayn</i>	1-14
Japanese Planes, <i>Cooke</i>	6-46
Japanese Tactics and Matériel	4-56
Jungle Warfare, Parts I, II, III, and IV, 3-46, 4-62, 5-68, 6-52	

K

Keep 'Em Falling, <i>Clark Lee</i>	1-78
--	------

L

Last Days on Corregidor	4-76
Lateral Adjustment of Fire, <i>Holland</i>	4-42
Letter from Corregidor	4-70
Lubrication of Coast Artillery Matériel, <i>Harry</i>	6-41

M

Map of Bataan	2-67
Melanesian Outpost, <i>Fowler</i>	6-32
Minimum Range, 155mm Guns, <i>Holland</i>	4-38
Moonlight Diagram, <i>Milmore</i>	2-55
Morale, Twenty-four Hours a Day, <i>Mozzicato</i>	4-26
Morale? It's Wonderful!, <i>Chickering</i>	5-46
More Training Per Round, <i>Lazar</i>	4-24
Motor Maintenance, <i>Havighorst</i>	4-60
Motor Sense, <i>Havighorst</i>	4-60
Motor Transport, Traction for the Soft Spots	4-34

N

New Caledonia, <i>Fowler</i>	6-32
New Mine Planter, <i>Picture</i>	6- 2

New Obstacle Course at Camp Edwards AATC, <i>Pictures</i>	6-36
News and Comment 1-78, 2-60, 3-62, 4-70, 5-78, 6-68	
Not by Paint Alone, <i>Saint-Gaudens</i>	5-10

O

Obstacle Course at Camp Edwards, <i>Pictures</i>	6-36
Officer Candidate School, <i>Dressner</i>	5-12
Officer Candidate School, <i>Smirnoff</i>	6-38
Officer Candidate School	5-16
Officers by Mass Production, <i>Aber</i>	5-16
On the Firing Line	2- 2
155mm Gun Training, <i>Greene</i>	4-12
Ordnance Matériel, Railway Machine Shop Cars, <i>Reese</i>	5-66
Ordnance Production, <i>Reed</i>	1-44
Organization of an AA Firing Point, <i>Caldwell</i>	1-63
Our Expanding Antiaircraft, <i>McNair</i>	6-30

P

Parachute Defense, <i>Workman</i>	1-36
Pearl Harbor, <i>Mills and Hicks</i>	6-22
Pictures 2-20, 3-32, 4-40, 5-4, 5-38, 6-0, 6-20, 36, 59	
Pioneer Training for AA, <i>Nelson</i>	1-48
Portable Observers' Hut, <i>Bray</i>	3-57

R

Railway Artillery is Ready to Roll, The, <i>Combes</i>	6- 6
Railway Machine Shop Cars, <i>Reese</i>	5-66
Range Data for High Speed Targets, <i>Rude</i>	4-31
Ration Computing Device, <i>Bullard</i>	4-52
Ready for Anything, <i>Gill</i>	3-52
The Real Thing, <i>Guy</i>	4- 4
Red Cross, <i>Kelly</i>	3-30
Rockets, Antiaircraft, <i>Pictures</i>	5-60
Rolling out the Barrels, <i>Pictures</i>	4-54

S

Seagoing Soldiers, <i>Pictures</i>	3-32
Second Coast Artillery, Flag of	4-51
Sending Adolf a Wire, <i>Pictures</i>	5-60
Shooting the 'Chutists, <i>Workman</i>	1-36
Sight Displacement and its Correction, <i>Button</i>	5-52
Solution for the AAAS, <i>Chandler</i>	1-67
Spanish Antiaircraft, Antiaircraft Artillery of the Army Corps, <i>Caruncho</i>	6-11
Story of Artillery Through the Ages, <i>Windas</i> 1-73, 2-72	

T

Talking to the Eye, <i>Tredennick</i>	2-36
Target Stuka, <i>Spaans</i>	3-34
The Task Ahead, <i>Green</i>	5-40
37mm Gun Training, More Training per Round, <i>Lazar</i>	4-24
Those Amphibious Japanese	2- 6
Traction for the Soft Spots	4-34
Training Directive, The Real Thing, <i>Guy</i>	4- 4
Training Films, <i>Tredennick</i>	2-36
Training the Automatic Weapons Fire Unit, <i>Mitchell</i>	5-17
Trial Shot Device, <i>Lucas</i>	4-36
Trial Shot Plotting Chart, <i>Pohl</i>	1-57
Twenty-four Hours a Day, <i>Mozzicato</i>	4-26

U

U. S. Hotel Chamberlin, <i>Reese</i>	2-52
Using the Crichton Slide Rule, <i>Eichinger</i>	6-25

W

War Planes of the Axis, <i>Cooke</i>	5-4, 6-46
What's New in Film Strips, <i>Greene</i>	4-12
When the Camera Fails, <i>Treat</i>	5-65



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